The Plough, the Loom, and the Anvil.

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Agricultural.

NATIONAL AGRICULTURAL DEPARTMENT.

IN the last number of the *Maine Farmer* we find the following:

We are glad to occasionally hear from different sections of the nation in regard to the necessity of having a department of agriculture connected with our government at Washington. It is a disgrace to us, as a nation, that we have nothing nearer to it than what is appended to the Patent-Office.

At the recent "Guano Convention," held at Washington, various plans were recommended for inducing the Peruvian government to change their system of trade in regard to the article of guano, so that it may be made to come to the consumer. It seems that as at present managed, a few make a monopoly of it, and charge most exorbitantly for it, when delivered in the United States.

In the course of the discussion, which we find reported in the *American Farmer*. Mr. Calvert made the following remarks. They are just, and speak the opinion and sentiments of very many who have considered the necessity of a department of agriculture.

"What we most want," said Mr. C., "is a Cabinet Minister, presiding over a department of agriculture. Nobody had ever attempted to offer any but unconstitutional objections to such a measure, and all such objections he repudiated. Congress ought not to be the sole arbiter of what is and is not constitutional. When Congress wanted to do anything, they never troubled themselves as to whether it was constitutional or not.

"He would like to know where the constitutionality of getting California, Florida, &c., could be found. Then there is Denmark and the Sound dues; nobody rises in Congress to question the constitutionality of coërcion in that case. But the moment agriculture asks anything, there are constitutional scruples in the way; it cannot be done. Now, it is high time that thing be stopped. Congressmen are rightfully not our masters, but our servants, and if farmers choose they can make them so really. We hear now-a-days a great deal about 'platforms;' it is high time to have an agricultural platform. Farmers do not want office for themselves, but they should take care to give no office to politicians until they pledge themselves to give us what we want. Under the combined influence of city life and commercial pursuits, the nation is beginning to wane, and nothing can restore it but a restoration to the agricultural community of its proper weight in the policy and legislation of the country. In the country we have

no '*isms*,' no unhealthy agitations, and on the rural population must rest our final hopes of national security. Notwithstanding all this, the interests of every other class are consulted and cared for, and the farmer alone is put off with 'constitutional scruples.'"

We are glad to see that the agricultural papers are taking up this subject. We hope they will discuss it at large. If it is unconstitutional that our government should take thought for the agricultural and mechanical interests of this great nation, let us make it constitutional. But it is not unconstitutional. Mr. Calvert says, "Farmers do not want office for themselves." We incline to the opinion that he is right. The farmers are undoubtedly a very modest class, too much so, we fear, for the true interests of the country. Whether they want offices or not, we cannot see why they should not have them. The public good requires that all classes should be represented in the government. If any class is to be excluded, the farmers are the very last on whom the exclusion should fall, and the mechanics next. Massachusetts, New-York, Virginia, and, perhaps, every State in the Union have farmers of worth, intelligence, high honor, who would grace our halls of legislation, would attend to the nation's wants, and not be spitting froth and cold lead at each other. The farmers do not want office; that is true; but the country wants their service; and when her halls of legislation are filled from all classes, and not from one—when farmers, mechanics, manufacturers, merchants, doctors, teachers, clergymen and lawyers, in due proportion, are sent to make and execute the laws,—then the laws will be better made and better enforced, and we shall at least have more decency in our halls of legislation.

TRANSACTIONS OF THE CONNECTICUT STATE AGRICULTURAL SOCIETY FOR 1855.

We are indebted for this volume to Henry A. Dyer, Esq., Cor. Sec. It is a volume of 350 pages, octavo, abounding in matters of great practical value; and should be found in the families of all farmers in that State, and of all who are not farmers; for the subjects on which it treats are of universal interest; and the information it communicates is such as every one *must have*, or be content to be set down as not *well informed*. To be ignoraut of American Agriculture, is to be ignorant of our own country. The time is at hand, if it has not already come, when those not read up on the farming and mechanical industry of the country, will not pass muster. We warn ladies and gentlemen to look out, lest they find themselves behind the times. The following observations we quote from a very able address, delivered before the State Society, by Henry C. Deming, Esq., on the "Beneficent Agencies of the Useful Arts."

Among the instrumentalities which affect the condition of man, the precedence is quite uniformly, and rightfully given to those which address themselves to his spiritual nature, to Religion, Education, Law and the Fine Arts. But if these agencies were the first in order of time, as they are in rank, to which he is subjected, and after they had done for him their utmost, he should be bereft of others, equally indispensable to his welfare, he would find himself the most miserable and pitiable specimen of the mamalian family.

He might be good, wise, upright, "noble in reason, infinite in faculties, in form and moving express and admirable, in action like an angel, in apprehension like a god," but he would be a naked, thin-skinned, hungry, thirsty, short-winded, shame-faced biped, without hide, fur or feathers. In such a condition the USEFUL ARTS receive the paragon of animals from the hands of his spiritual guardians. They feed, cloth, shelter, cleanse, adorn him. In comparison with other creatures, they find him weak, and endow him with a strength superior to all; defenseless, and equip him with arms that vanquish all; slow, and give him wings that outstrip the eagle; in short, they encircle his perishable with comforts and luxuries worthy of his imperishable nature.

Though the USEFUL ARTS find MAN thus destitute personally, he is no beggar, but the undoubted and rightful heir of a most splendid inheritance,—useless and unavailable, it is true, in its moral condition, but under proper culture and management, an inexhaustible mine of plenty and wealth. It consists of the rough matter which composes the solid earth; of the soil and water which cover it; of the birds of the air, and the beasts of the field and the fishes of the sea. Of this inheritance, the USEFUL ARTS become the most serviceable and trustworthy of stewards. They convert the solid earth into innumerable objects of convenience and value. They open communications, secure the harvests, collect the flocks, cultivate the soil, improve the fisheries; in short, they render the world, over which dominion was given to man, a comfortable, convenient and elegant abode.

God creates matter, but the USEFUL ARTS create its utility, or in the language of Political Economy, they are producers, and production is the sole, the only fountain head, of that enviable stream, the wealth of Nations. Commerce, to be sure, is an important agent in diverting the current and in changing the relative position of wealth, but it adds not one drop to the golden stream, for which countless myriads thirst. Production is its only origin, and every flight of human credulity, every device of human ingenuity, to discover some other source of this pactolus, has signally sailed. The Golden Fleece, the dreams of the Alchemist, the visions of El Dorado, South-Sea Bubbles, tulip-manias, multicaulis-manias, California-fevers, stock-jobbing, and up-town lots, are the weighty authorities and confirmation strong, which successive centuries have brought to the truth, that production is the only real source, of the aggregate wealth of Nations. Many falser images have been used than that which declares, that "Gold, in its last analysis, is the sweat of the poor and the blood of the brave."

It is a liberal estimate, which assigns one-fifth of the human family, in civilized countries, to the non-producing class; the USEFUL ARTS provide for the remaining four-fifths, and thus convert into props,

and pillars, and bulwarks, what would otherwise be, intolerable drags and burthens, and nuisances in a state. They give employment, not servile and degrading, but honorable and remunerative employment, to a vast majority of the human family. This consideration alone, if it was all that could be urged, would place them foremost, among the agencies which contribute to the welfare of the race.

But still higher commendation belongs to them. They are the grand instruments by which LABOR acts upon the world, and thus the paramount obligations justly due to LABOR, become justly due to the USEFUL ARTS. "In the sweat of thy brow thou shalt eat bread," is a curse which carries a blessing with it. Like Mercy, labor is twice blessed,—

"It blesseth him that gives and him that takes."

That toil to which we are condemned, as the tenure of existence here below, is the training, which invests both body and soul, with the insignia of true and genuine manhood. Effort is the only school for muscles of the frame, and the muscles of the intellect. Where but in that rocky mine which LABOR delves, can be found those priceless gems, will, efficiency, courage, pluck, perseverance, patience, self-confidence, self-reliance, contempt for difficulties? These are the sheet anchors of the heroic character, this is the stuff of which martyrs aud heroes are made,—these fashion those souls, that are adamant in a just cause. Goethe gracefully compares the effect, of a strong necessity, imposed upon a mind, habitually untasked, to an oak planted in a China vase; when the branches expand and the roots strike out, the vessel flies to pieces.

Invaluable as is this disciplinary function of LABOR, it is but a pebble picked up on the shore—a drop in the boundless ocean of her beneficence. LABOR is a universal solvent, a philosopher's stone, with transmuting powers, magical and gorgeous beyond the dying alchemist's dream. Entering into all the dead, sluggish, inert matter of the earth, she imparts to all the life-like properties of Utility and Value. There is nothing in the caverns of this round globe, in the depths of the sea, I had almost said in the realm of Air, which LABOR transforms not into a necessity or a luxury. No sweep of ocean, no forbidding desert, no fastnessess of forest or of wilderness, can hide a product useful to man from the omnipresent eye of his great Benefactor. She catches from the passing breeze, the waste white down of the cotton shrub, and lo! bleaching cloth lies in the place of idle litter and the nakedness of man is covered. She stumbles upon a worthless mass of vitrified sand, and behold! window panes for every man's dwelling, cheap drinking cups for every man's table, the mirror, the Portland vase, the prism, the telescope, the microscope, the Crystal Palace. It stretches its hand over the waste places of the earth, and "instead of the thorn, comes up the fig-tree, and instead of the brier, the myrtle-tree." Iron, in its fingers, is as flexible as clay in the potter's, while language struggles in vain to depict the infinite variety of texture and utility, which it imparts to the fleece of an animal, the gum of a tree, and the entrails of a worm. There are no such words as "useless," "worthless" in her vocabulary. Refuse and rubbish are no longer such, when touched by her wand. The dead animal, which was formerly banished to the wilderness as a nuisance, she now transmografies into something useful or ornamental; she even brings life

out of death, vitalizing exhausted soils, by the moldering relics of mortality, which she digs from the Blenheims, the Austerlitzes and Waterloos of the world.

The blessings which mankind owes to PRODUCTIVE LABOR, can be vividly realized, by imagining the state of things, if it should be annihilated. Suppose then, by some all-pervading distemper, or by some fiat of divine displeasure, the arm of universal labor was paralyzed. It would break the main-spring which sets the whole machinery of existence in motion. It would cut off the supply of life at the fountain. The wheel of business, losing its only momentum, would soon cease to revolve. Grass would grow in our most crowded thoroughfares. Those great marts, where traffic now chaffers in its thousand tongues, where cheerful art rings its innumerable sounds, and busy and hurrying myriads proclaim the bright and joyful reign of LABOR, would become noiseless, and blighted, and petrified, like some vast city of the dead. Not the clink of a hammer nor the rattle of a shuttle, nor the whiff of a steam-engine, nor the roll of a wheel, would break the sepulchral stillness of an idle world. The axe, the file and the saw would lie silent where they had dropped from the hand of the yawning artizan; the plough would rust where it had stopped in the furrow. All the products of the now idle weaver, would soon drop piecemeal from the shelves of the merchant, and tattered rags, hanging on a universe of sluggards, would pre-announce man's speedy return to his original Nakedness. Crops would decay in the field. The ungathered fruit would rot upon the ground; the granary would soon surrender its last kernel. Starvation would follow Nakedness. Ships, sailorless, would toss upon the seas, the forest would be burnt for fuel, the mine would no longer send to our wharves the grateful coal, and Frost—a third fury—would follow in the footsteps of Nakedness and Famine. The palaces of the great, the habitation of every family, would be burnt for fire, whole cities would be consumed, and naked and starving man would soon be houseless, shelterless, and gathering round the dying embers of their dwelling, would rake together the feeble sparks, with skeleton fingers. Religion, Education, Law, the Church, the Altar, and the Capitol, would all be whelmed and wrecked in a world-wide maelstrom of wretchedness and despair.

ON THE FERTILIZERS FOR FRUIT TREES.

BY MARSHALL P. WILDER, OF BOSTON, MASS.

In relation to appropriate fertilizers for trees a diversity of opinion prevails. All agree that certain substances exist in plants and trees, and that these must be contained in the soil to produce growth, elaboration and perfection. To supply these, some advocate the use of what are termed "special manures," others ridicule the idea. I would suggest whether this is not a difference in language, rather than in principle; for in special fertilizers, the first make simply those which correspond with the constituents of the crop; but are not the second careful to select and apply manures which contain those elements?

and do they not, in practice, affix the seal of their approbation to the theory which they oppose? Explode this doctrine, and do you not destroy the principle of manuring and the necessity of a rotation of crops? Trees exhaust the soil of certain ingredients, and, like animals, must have their appropriate food. All know how difficult it is to make a fruit tree flourish on the spot from which an old tree of the same species has been removed.

The great practical question now agitating the community is, How shall we ascertain what fertilizing elements are appropriate to a particular species of vegetation? To this two replies are rendered. Some say, analyze the crop; others, the soil. Each, I think, maintains a truth; and both together, nearly the whole truth. We need the analysis of the crop to teach us its ingredients, and that of the soil to ascertain whether it contains those ingredients; and if it does not, what fertilizer must be applied to supply them. Thus, by analysis, we learn that nearly a quarter part of the constituents of the pear, the grape, and the strawberry consists of potash. This abounds in new soils, and peculiarly adapts them to the production of these fruits, but having been extracted from soils long under cultivation, it is supplied by wood ashes or potash, the value of which has of late greatly increased in the estimation of cultivators.

WHEAT AND ITS ENEMIES.

When the enemies of the wheat crop are so prevalent, with a prospect of increase, let our friends take a few timely hints. There is no known remedy for the depredations of *fly*, *chinch-bug*, *joint-worm*, *&c.;* but we think experience will bear witness that there is a grand preventive in good cultivation. A vigorous and thrifty growth successfully resists, when the most promising appliances are powerless before, their ravages. And not only so, but throughout nature it will be found that where there is least power of resistance, the subtle enemy is most likely to make his attacks. It is not the sound and healthy, those who have enjoyed wholesome atmosphere and good food, who are swept off by epidemics, but those whose constitutions enfeebled by any cause, *predispose* them, as we aptly say, to disease. The sleek and well-kept animal is not troubled with lice, when they swarm upon the ill-fed, "ill-conditioned" beast. And the enemies of plants seek their food upon the poor and sickly, where they find as it were the least resistance against their encroachments. The principle is universal, that "from him that hath not shall be taken away that which he hath."

But however this reasoning may be questioned, the philosophy of a sound, vigorous, healthy constitution for man, beast, or plant, as a safeguard against all natural enemies, no one will question. For the wheat plant, then, begin in time, and make the most thorough preparation for its reception. So get ready the ground, that it may do the very best of which it is capable. To those who plough deep, and aim to deepen their surface soil at every ploughing, we suggest that some judicious farmers, who would plough deep generally, think it not advisable for the wheat crop. We adopt the opinion to this ex-

tent, that we do not think a portion of fresh subsoil should be now brought to the surface. The natural range of the roots of wheat is within about three inches of the surface, and for that reason it is desirable to have there the richest portion of the soil.

As to manures, he who properly uses all other means of success, should put on enough to secure him thirty bushels to the acre. The nearer he approximates that point, the less liable is his crop to suffer from its natural foes.

Early seeding is a point of great importance. A good growth of root in the Fall preserves from Winter killing. The plant having well withstood the Winter, is prepared for an early, vigorous start in the Spring. This enables it to resist and outgrow the attack of fly and other insects. And the early ripening is almost an insurance againt *rust*. Where it is practicable, we should sow by the last of September. The only objection to early sowing is, that the crop is more liable to the Fall attack of the fly. This objection seems in practice, to be far outweighed by the advantages on the other side.

Another important point is that of good, plump, well-ripened seed, of a hardy and early ripening variety.—*American Farmer.*

METHOD OF CONVERTING URINE INTO A SOLID PORTABLE MANURE.

BY DR. J. DAVY, PROF. AGRICULTURAL CHEMISTRY, DUBLIN.

THE chief objections to the use of urine are well known to be the large amount of water it contains; the difficulty or expense of its removal, and the offensive odor arising from its decomposition, when kept in its common state for some time. These objections may all, however, be obviated by very simple means. Mix the urine, either fresh or stale or a mixture of both with peat and turf mold, in rather coarse powder, (in the ordinary state of dryness it acquires by simple exposure to the atmosphere,) into a soft solid, which is spread out so as to occupy a large surface in the open air; or under cover if necessary, where there is a free communication, with the air. In a short time its water is removed, (without the aid of artificial heat) merely by spontaneous evaporation, which takes place at all temperatures, and with a rapidity increasing with the warmth, dryness, motion of the air, etc.; then when the soft solid is become dry, a fresh quantity of urine is mixed with it, and the previous process of drying repeated. In this way there can be obtained dry measures in powder, containing one part by weight of peat mold, and the solid matter of from one to sixteen parts by weight of urine, without any offensive odor.

The best mode of making this manure so as to meet the wants of agriculturists, would obviously depend on their peculiar circumstances, and is a mere matter of mechanical arrangement and detail. The simple means here proposed seem to be well adapted to effect the important object stated. *Peat or turf mold*, from its properties, composition and abundance, is admirably adapted as a medium for taking up a large amount of urine, yielding its water to the atmosphere and retaining its solid matter in a state fit to supply nutriment to plants.

Thus, when dry it is light and spongy, being only about one third of the density of our common soils. It also contains, more or less, earthy and alkaline salts; often much gypsum, and likewise a variable quantity of ammonia, derived from organic matter or the atmosphere. It has also similar de-odorizing and disinfecting properties as charcoal, so that it readily neutralizes or destroys the most fœtid odors. It seems calculated to infuse the texture and modify the absorbent powers of the generality of soils, and is everywhere abundant. The application of peat mold to save urine does not supersede its still more important use as a means of de-odorizing mixed excreta, both solid and fluid, and converting it into manure, not inferior to the guanos imported from foreign countries.

The value of those immense accumulations of peat or swamp mud, every where found, is much greater than is generally supposed. We should not think it strange if it should yet be found to be the best of all substances for concentrating the fertilizing portions of excreta from cities and villages, into manures sufficiently portable to be carried considerable distances into the country. The products of the farm go to the nearest market. The farm will be impoverished, unless the elements of these products be returned. The most important question now before the agricultural world, and it is one in which our English brethren are delving more deeply than we are, is, how to restore the elements of fertility brought to the city. And this is not merely a question of agriculture. It is a question of health and of life to the city, as well as of fertility to the country—one with which Boards of health, as well as Boards of agriculture, have to do. The problem is: to *clean* the city and *enrich* the country, to give the citizens *pure air* and the farmers *big crops*, the two parties jointly paying the expense; and we suspect that the very homely article of swamp-mud may have an important part to play in the operation. It is principally for the purpose of inviting thought and investigation that we have re-published the above from the pen of Prof. Davy. But whether the mud of our swamps is ever to be used for the purposes suggested above or not, it should, wherever found, be used abundantly on the farm, as an absorbant, a de-odorizer, a fertilizer. It possesses great value for these home purposes. If dug in the dryest time after harvest, and carted to the barn after lying in the sun, till it becomes light, and then used abundantly through the winter and early spring, about the pens and stalls and manure heaps, it will not fail to more than repay the trouble and expense of thus employing it.

Poisoning by Guano.—Persons having cuts upon the hands should be very careful in handling this manure. *The Phil. U. S. Gazette* mentions the death of a man in a neighboring country from this cause. Decomposed animal matters are especially dangerous.

DROUGHTS—WHITHER ARE WE TENDING?

THE destruction of our forests, a destruction which has been going on now ever since the settlement of the country, and which has been remarkably rapid in the West for the last fifty years, is producing the following results, which must be very obvious to every observant person.

The surface of the earth is more exposed to the drying winds, and to the beams of our summer sun. These causes quicken the drying of the soils.

The sources of many a well and stream are dried by the removal of trees from slopes and hills, from whose bosoms they once drew a permanent supply of water.

Far less rain falls on the soil during the *summer* months than would fall if the earth was more generally shaded with trees. Wide forests attract showers. Many a forest enjoys a generous rain, when the wide, open plain is scorched with drought. Forests act as do streams, to direct the courses of showers, and concentrate them upon their own area. Perhaps as much water falls in a *year* on a prairie or open country, but it comes in great storms, and in the winter, or spring, or autumn. When it is needed most it is most lacking.

Forests serve as pumps to draw up water from deep in the ground. Every one who knows what an amount of water a single large tree will draw from the ground by its roots, and throw into the air from its leaves, can form some idea of the vast quantity of moisture which is exhaled by a wide forest in a single week, or even in a single day. The ordinary vegetation of a farm does this in a far less degree. The removal of the forests, therefore, greatly diminishes the amount of moisture, which, during the summer, is exhaled into the air from the vegetation which covers a given area. Consequently much less exists in the air as the material for showers, than would exist were the forests drawing from the deep earth a more generous supply.

It will be seen from these facts that the destruction of the forests is *one* grand cause for the droughts which have become more frequent and intense for the last several years. Some, if not all, of these results of the removal of our forests have attracted the notice of our farmers, and they have doubtless prepared them to consider somewhat the question what remedy is feasible.

The only remedy possible is simple and plain. It might not cure the evil. But it would doubtless diminish it. It consists of an adherence to the following maxims:—*Save* all the forest trees you can. And *plant* (on the prairies especially) all the trees you can.

Under the head of *saving* trees, the course would be somewhat like this. On the older farms and in the olders districts, *clear no more land.* Select the least valuable wood for fuel. Allow the second growth of timber to have a fair chance. When trees are felled for lumber or building timber, let them be cut so that in falling they shall injure as little as possible the surrounding trees. Then use for fuel all those parts of the felled trees that you cannot use for lumber or timber. If you *must* clear land, clear the lowest ground, leaving the hill-sides and the summits covered with their leafy honors. There are more reasons than one for this advice.

Under the head of planting, we would recommend the following things. We may repeat the same suggestions hereafter. So we will begin now. Plant trees around wells and permanent bodies of water. Plant trees along broken ground on the peaks and sides of rocky ledges. Plant tress to protect houses and barns, and other buildings, from the heats of summer, and from the storms of winter. If your farm is cleared too much, and you decide to *keep* it, devote a portion of the cleared land to the growth of forest trees. Get the best advice you can. Select the ground with the best judgment you can command; fence it up well, and plant a good variety of quick growing trees, mostly indigenous, for the use of your children. If you are not a very old man, you may live to use them yourself, and to learn, by that time, that they render the ground they stand on the most valuable part of your estate.—*O. Farmer.*

MULCHING.

This is a term used by horticulturists for shading the ground around growing trees, shrubs, and plants. There are many plants so delicate in their structure, that they absolutely require mulching the first summer, to insure their roots a firm hold in the ground. But as most of our summers are so dry and hot, there are few plants that are not benefitted by mulching.

If the ground around fruit trees is cleared of the weeds and grass, and mulched with leaves or straw, immediately after a rain, the tree will be invigorated, and a fine crop of fruit will be the reward. Roses that are wilting, and showing a sickly bloom will be revived, and bloom in beauty, by mulching when the ground is moist. The Dahlia, a plant that requires a great deal of moisture, will bloom in perfection until frost, if kept properly mulched throughout the summer. Now, when we recommend mulching, we do not mean a few leaves or straws placed immediately around the plant, but a coating so thick that the sun cannot penetrate through, and placed as far from the plant or tree as the influence of the roots extend. Anything that will shade the ground; rock, brick or plank, will answer to mulch with; but substances that in their decomposition will make a soil, are decidedly preferable. The native forests mulch themselves, and we see how rank and vigorous they grow. We think that, unless the surface be kept constantly stirred around a tree or plant, the rays of the sun should never rest upon it. Those who look upon labor and effort as a great bug-bear, may get along without mulching. But those who mulch properly actually save time and labor, for when it is well done, the labor is done for the year, and the soil is all the time being enriched, as the plant grows and perfects itself. Therefore we say to the orchardist, mulch around your fruit trees; to the vine-grower, mulch around the grape vines; to the gardener, mulch among the vegetables; to our fair lady florists, mulch among the flowers, mulch—mulch—mulch. Never tire of mulching.—*Soil of the South.*

TIME TO DRAIN BOGS.

We generally have a time between the close of the haying season and the "fall rains," when farmers find that the springs and streams are low, and they can operate by ditching and cutting away obstructions, to good advantage, in draining their lowlands. Some farmers neglect to begin this business because they cannot finish it at one job, without hiring more help than they can well afford to. In such cases would it not be advisable to look over the whole ground—ascertain accurately what is required to be done, to effect perfect drainage, or to give you control of the water, and begin upon it, doing a part at a time. In this way, by a little perseverance for a few years, you will ultimately accomplish the undertaking. The profits will then begin to accumulate, and to repay for the labor and cost expended. We know of several instances where individuals have followed such a course, who are now reaping a rich reward for their faith and perseverance.

There are many cases where the lowlands are somewhat extensive, and owned by several individuals; in such cases it would be difficult, and manifestly unjust for one of the proprietors alone, to make all the improvements required. When an advantage or profit is to accrue to all of the proprietors, all should unite and put in according to the amount of their possession in the property, and thus make common cause of it. We have now in our mind's eye a case like the above, in Winthrop. A valuable piece of muck land is owned by several proprietors. It has been partially drained by ditching, which improvement has demonstrated that the land can be made of double, nay, of tenfold more value to its owners, if a thorough drainage and control of the water could be had. To effect this it is necessary that a ledge near the outlet of a sluggish stream should be blasted, and a dam or flume put in, to stop, or to give vent to the waters at pleasure. It would be but a trifling job to the proprietors if they would unite, but rather too heavy for any single one of them to undertake alone. We presume many of our readers know of just such cases in their respective neighborhoods.

There are also many cases like this, viz.: A large tract of valuable grass or meadow land is ruined and rendered of no value to the proprietors, on account of some old mill dam at the outlet of the stream, the owner of which will persist in keeping up, while the hay that would be obtained, if that were away, would be worth more, each year, than a dozen such mills. In such cases, it would be a good investment, if the owner would sell at a reasonable rate, for the meadow proprietors above him to unite and buy him out, and thus be enabled to control the water.

In looking about the State, any one will soon see a vast deal of the kind of lands we are speaking of, that, by draining, would pay great interest on the cost, but which are now wholly worthless, because they are overflowed and saturated with water to such a degree as to render them worthless for any other purpose than a frog or mosquito paradise.—*Maine Farmer.*

VINEYARDS IN THE SOUTH.—MR. AXT'S VIEW OF GRAPE CULTURE, ETC.

It is probably well known to most of our readers, (says the *Southern Cultivator*,) that Mr. Chas. Axt, now of Crawfordville, Ga., has been chiefly instrumental in awakening among us an interest in the culture of the Grape for Wine Making; and that, so far, his efforts in various parts of Georgia and the adjoining States, have been attended with marked success. A brief statement of his views (as set forth by him during a recent conversation with us on this most interesting subject) may not, therefore, be unacceptable to our readers:

MR. AXT ON VINE CULTURE.

Healthfulness of the Grape.—The grape is universally admitted to be one of the healthiest of all fruits, as it is among the most delicious. It was one of the first fruit that claimed the attention of man, and has never failed to return a rich and abundant reward for the care bestowed upon it. The fruit of the vine is cooling and refreshing, and has a very salutary effect upon the system—being both nutritious and medicinal. It attenuates the blood, and gives it a free circulation—delighting the young and renovating the old. Taken freely it is diuretic and gently laxative. It has often proved effectual in severe cases of dissentery, even curing whole armies. In inflammatory diseases it allays thirst and reduces the heat of the system. It is also of the greatest use in phthisical and pulmonary diseases, or where there is any difficulty in breathing. Dried Grapes, or Raisins, are good for the dessert, and in various ways of cooking, and are used extensively throughout the civilized world. There is no reason why they should not be made in vast quantities and in the greatest perfection, in the Southern States.

Natural Wine—its Domestic use—Promotion of Temperance and Sobriety.—Natural wine is the *pure* fermented juice of the Grape, entirely free from any admixture of sugar or alcoholic spirits. Wherever these are added, the result is a "made wine," cordial or syrup—not a pure and true *wine*. Nearly all foreign or imported wines are badly adulterated, and most of them unfit to drink. Many of them, in addition to sugar or spirits, contain decoctions of drugs highly deleterious to health—as any person can determine for himself by the disagreeable after-effects of a free indulgence in them at a dinner-party or over night. *Pure* and *natural wine*, on the contrary, when drank in moderation, produces only a slight exhileration and buoyancy of spirits; it is *tonic* and *strengthening* and is followed by no nausea, headache or confusion of ideas. Where such wine is used habitually in a family and the children have free access to it, they grow up *sober* and *temperate*, as is abundantly proved by the statistics and statements of travelers in all wine-producing countries. Where *pure wine* can be had abundantly and cheaply, there is no taste so depraved as to indulge in fiery alcoholic spirits as a beverage, and therefore *drunkenness*, with all its attendant horrors and crimes, is almost unknown in wine countries. All lovers of temperence, of good morals, of virtue, law and order, should therefore encourage the culture of the grape and the making of a pure and healthy *natural wine*.

Advantages in Vine Culture possessed by the South over all other

Countries.—The South possesses great and decided advantages in Grape growing over either Europe or the Western States. In the latter countries the grape is very fastidious in its choice of soil and exposure—thriving only upon warm, porous, deeply-trenched and well-drained hill-sides, facing the sun. In these countries, the first cost of land suitable for the Grape is often from $100 to $400 per acre. In the South, where the grape flourishes on almost any soil or exposure, land can be bought from $3 to $10 per acre. In Europe and at the West, owing to the defects of climate and cold nature of the soil, the *preparation* of land for vineyards, (such as trenching, teracing, walling, etc.) cost from $50 to $200 per acre; while in the more genial climate of the South, by the use of the sub-soil and deep-turning plough, followed by the spade or shovel, can prepare land for Vineyards at a cost of $40 per acre, or even less.

Early Bearing and Maturity at the South.—At the West, (in Ohio and elsewhere) the Vines only begin to bear a few grapes the *third* year; and if well managed, from the *sixth* year onwards, will average from 300 to 400 gallons of wine per acre. In the South we can easily get *one thousand* (1000) gallons of wine per acre, the *third* year after planting the cuttings; and, under favorable circumstances, from the fifth year onwards, each acre will average from 2000 to 2500 gallons of pure unadulterated wine. In Ohio, one good vine-dresser can attend to *five* acres; while in the South, from the increased length of the season and additional *time* to do the work, the same hand can easily manage *ten* acres—both, of course, needing much additional help at the gathering time and vintage.

Superior Climate of the South.—Ohio and other Western States are liable to many disasters from the fickleness and variableness of the weather; it being often too cold, too wet, too damp, too foggy, etc., etc., to say nothing of various other mishaps; causing a loss nearly every year of *half the crop.* In fact, a fine, warm, sunny summer is *indispensably necessary*, at the West, to make a good crop of grapes, and a finely-flavored wine. For instance, the year 1853 produced a very superior crop, and the vintage of that season is still deservedly esteemed; but neither at the West or in Europe can they depend on such a season more than once in ten years. In the unfavorable years, the wine is generally too *rough* and *sour* to drink in its *natural* state, and it is, therefore, necessary to add sugar to produce what is known as Champagne or "Sparkling Wine." This popular drink is very pleasant, palateable, and not particularly injurious; but in point of purity or healthfulness it does not rank with the perfectly *pure* "still wines" before alluded to. We, of the South, are exempt from all climate disasters—the only contingency being a frost in May or a hail-storm during the period of fruiting. The summer weather of the South is *always favorable* to the Grape, and we are, therefore, able to make, every year, a full, heavy crop, allowing the bunches to hang on the vines until they are fully matured—an indispensible requisite to the making of good wine. At the West, the vintner is often forced to pick the grapes before they are fully ripe, owing to decay commencing. By allowing our grapes to attain full perfection on the vine, we can produce a wine equal or superior to the very finest imported; and such wine, if "made" into a sparkling Champagne, will

be mild, fruity, entirely free from roughness, and altogether unrivalled by any in the world.

General Propositions.—From the facts above stated, any person acquainted, by travel and observation, with the different climates and modes of Grape Culture in this and foreign countries, will readily admit that if the South, with her cheap land and slave labor—her *unrivalled climate*, good soils, wealth, etc., etc., will only enter upon and prosecute vigorously the culture of Grape, and Wine Making, she will in thirty or forty years hence, control the wine markets of the world as she now does the Cotton Market; and that, too without any serious detriment to the production of the latter—for the Grape has been and can be easily and successfully grown upon our exhausted cotton fields and old waste land, by proper *preparation* at first and a slight annual manuring afterwards. Indeed we can afford to make Wine in the South at 50 cents per gallon, and then realize more money than from almost any other Crop. In Ohio, however, owing to the *uncertainty* of the crop and the comparatively *small yield*, such a price would not be sufficiently remunerative to hold out inducements to men of enterprise to engage in the business. (In making the foregoing comparisons between the West and the South, no invidiousness is intended. We cheerfully award the highest credit to the enterprizing and skilful vintners of Ohio and other States, only claiming for our own favored region, those natural advantages which it so obviously possesses.)

Invitation to the Vineyards of Mr. Axt.—Mr. A. states that he has not yet had the good fortune to see in his section a Vineyard well and properly planted, trimmed and managed; especially with reference to the peculiarities of our soils and climate. He is, therefore willing, to throw open to public inspection, the Vineyards now under his direction at various places of the South. In Wilkes Co., Ga., he has one, two and four year old vineyards—the latter in *full bearing* In Whitfield Co., near Dalton, Ga., two and three year old vineyards, the latter in bearing. In Montgomery and Antauga counties, Alabama, two year old vineyards, *bearing finely*—an additional proof that the climate of even the far South is perfectly adapted to the growth and *early productiveness* of the Grape.

All persons who take any interest in the Grape enterprise are cordially invited to visit any or all of these Vineyards in the latter part of August for the present year (1856) to witness the gathering of the Grapes, the making of the Wine, etc. With the Vines and the Grapes before them, Mr. Axt will be better able to give his Visitors satisfactory explanations on the subject, and to remove from their minds all prejudice, doubt and misapprehension. His Grapes being in perfection, he will, he hopes, be enabled to satisfy the palate as well as the eye and the judgment of all who may avail themselves of his invitation. He will also be happy hereafter to answer through the columns of this journal all inquiries on this subject, and solicits the views and opinions of all intelligent and experienced Grape Growers throughout the South.

We consider the cause of temperance as much higher than any matter of Rural economy as the heavens are above the earth. The question with us is: does an abundance of wholesome, slightly-exhilerating beverages pave the way to an excess in strong drinks, by

insidiously creating a relish for stimulants, which by-and-by will be satisfied only with the strongest, so that the person who begins with mild wines, will be likely to end with downright fire-water; or does the use of milder beverages tend somewhat to satisfy, and thus to save from the folly and sin and terrible results of beastly intemperance? (The beasts will pardon us.) We incline to the latter opinion —may not be right, but would as soon leave our descendants in a wine-growing-country as in one where no grade of beverage is produced between water and distilled spirits, should expect that in the latter case as many would jump the chasm at a leap, as in the former would go over on the bridge of minor stimulants to self-murder and a drunkard's end. Thus believing that the danger of all ruining intemperance will not be increased, and may possibly be diminished by the production of wine, we are prepared to view the subject simply in an economical light; and viewing it thus, we fully agree with the *Edgefield Advertiser*, that its production among ourselves is a matter of considerable importance. Undoubtedly the South can grow as good wine as any country in the world; and even the extreme North is not as far from the tropic as some of the greatest wine-growing regions in Europe. The North can produce a pretty good wine, if it is desirable it should. We do not advise to the use of wine; nor is it our object now to advise to the contrary. We suppose that, like ourselves, others will do as they please; that some will use it, that consequently there will be a demand for it; and we see no reason why the demand should not be supplied by American industry. We are now shipping a million of coin by nearly every steamer that leaves for Europe. Much of it goes for iron; some for wine. Why should not the former go to the American manufacturer? Why not the latter to the American farmer? Why should not the labor of both be done in this country, and so the demand for American farm produce be increased, by the importation of families to perform the extra labor. We can see no reason.

PULVERIZE THE EARTH.

Jethro Tull, a long time ago, demonstrated the great utility of making the soil as fine as possible, in order to insure luxuriant crops. He became so enthusiastic in regard to this matter that he stated his belief that this was all that was necessary to do, and that manuring was of but little service where pulverizing the earth finely could be done. In the last idea he was wrong, but in the first he was right. We most of us fail in this particular. Why do we plough, harrow, hoe, and stir up the soil at all? In order to make it so fine and so easily penetrated that the roots of plants can be easily spread abroad among it.—Well, if it requires this, can there be any definite limit to the degree of pulverization? If it be of service to pulverize it as

much as the plough and harrow can do it, is it of no service to carry this further? It would certainly seem, reasoning theoretically upon the subject, that it would be of service to go on and make it as fine as possible, and every day practice and experience prove that it is.

We would like to see an experiment like this tried: Measure off a certain portion of soil, say ten feet square, and another portion next to it ten feet square. Put no fertilizers upon either so as to keep them naturally as near alike in this respect as possible. Box them both two feet in depth with boards or planks. Spade and rake over No. 1 in the usual way. Spade up No. 2 in the usual way, and pass the whole of it to the depth of a foot through a pretty coarse wire sieve or screen, so as to get it pretty thoroughly pulverized. Then plant upon each the same kind of seed, in the same quantity and at the same time. Hoe No. 1 in the usual way, but use every means to keep No. 2 as finely pulverized as at first, and note the result upon the crop. This would be a comparative experiment, and although once or twice so experimenting would not be decisive, yet in a series of such experiments through a variety of seasons, the facts, whatever they might be, would become pretty well established.—*Maine Farmer.*

There can be no doubt that the more finely any ordinary soil is pulverized, the more it will produce. The practical question is, to what degree of fineness, the increased production will pay for the extra labor, or how far the process of pulverization can be carried with paying results. If this point could be ascertained, we believe it would be much beyond the common practice.

RAISING INDIAN CORN WITHOUT TILLAGE AFTER PLANTING.

Messrs. Editors:—By experiment I have arrived at some conclusions in regard to the culture of Indian corn, which I think of importance to farmers in the Southern States. I communicate them to the use of the public with great hesitation, because they are in direct variance with the received opinions on the subject.

Last spring I planted a small piece of poor ground—first breaking it up well. The rows were made three feet apart, and the stalks left about one foot apart in the drill. The ground had been very foul the previous year with crab grass. The corn was not well up before the grass began to appear. When the corn had about four blades, the young grass completely covered the ground, and the corn was turning yellow. I spread a small quantity of stable manure around the corn, and covered the whole ground three or four inches deep with leaves from the forest, taking care to do this when the ground was wet, and the leaves also, that they might not be blown away, and to leave the tops of the young corn uncovered. In ten days there was not a particle of living grass to be found, and the corn had put on that deep bluish green which always denotes a healthy condition of that plant.

From the day the corn was planted until after the fodder was pulled and the tops cut, nothing more was done with it; and the result is a product at the rate of forty-two bushels to the acre.

I noted in the course of the summer the following facts: First, The corn treated thus was always ahead of some planted alongside of it, and treated in the usual way. Second, It ripened at least ten days sooner than other corn planted at the same time. Third, The hottest and driest days the blades never twisted up, as did other corn in the neighborhood. Fourth, In the driest weather, on removing the leaves, the ground was found to be moist to the surface, and loose as deep as it had been first broken up. Fifth, The heaviest rains had scarcely any effect in washing away the soil or making it hard.—*Tennessee Farmer.*

It would seem quite possible that, in the sunnier South, the mode of cultivation above described might be attended with good results; and, as we believe in progress, not doubting that a great many new truths and wise practices are yet to be discovered, we rejoice in the enterprise that dares to step on untrodden ground—to try experiments and to report progress. It is more than possible that L. T. I., the writer of the above, has started a thought that may prove of great value to corn-growers in his latitude. But in the North this process could hardly succeed. The mulching would prevent the soil from becoming sufficiently warm for Indian corn. The true policy in the North is, to plough deep, pulverize thoroughly, manure highly, cultivate cleanly till about the middle of July (never after) and to get just about twice as much corn to the acre as L. T. I. reports. Here the leaves, instead of being used as a mulching, should be brought to the barn the previous autumn, put under cover, or stacked out, with straw enough to keep them from blowing away, and then used for bedding, before being applied to the corn field. With the exception of plain lands, which may be cultivated cheaply, and from which the cultivator may be contented with a crop of twenty, twenty-five, or thirty bushels to the acre, we should aim at a hundred bushels, and so enrich and cultivate our grounds as not to fall very much short of that. The average yield of corn in New-York and the New-England States, after setting aside the plain lands, which may be cultivated cheaply and for a small crop, ought to be not less than seventy-five bushels an acre; and we are persuaded that a cultivation high enough to bring about this result would give a better profit on the labor and other expenses of corn growing than a lower one.

Ox-Shoeing—We frequently find in agricultural papers some remarks about shoeing horses, but I have never seen anything therein about shoeing oxen. Now, it is true that a horse should be shod in such a manner as to cause him to stand and travel with ease, and the ox should be shod with equal care; but we frequently find oxen, especially large oxen, lamed by shoeing. Now, I find one great error to be in the length and shape of the shoes. If the shoes are long and

crooked, they of course cause the weight of the ox to bear on the inner edge of the shoe, or center of the foot, causing the hoofs to cant in an unnatural position. This may do for small, light cattle, but with heavy oxen it is quite different.

In shoeing large oxen there should be one inch of the toe or forward end of the hoof left bare, and be sure that the shoe sets flush with the outside of the hoof. Then the heel of the shoe should not be crooked or turned in too much; but our blacksmiths are apt to be in too great a hurry, and if a shoe comes within hailing distance of a good fit, they must nail it on in preference to selecting a better.

I am not a blacksmith, but I have always been acquainted with oxen having teamed for forty years, and, of course, had many cattle shod. If the above remarks are not correct, I should like to be set right.—*Maine Farmer.*

THE STRAWBERRY.

It is urged by many, and we suspect not without reason, that the consumption of less meat and more fruit would be an improvement in American dietetics. If this view is correct, the cultivation of fruit becomes important as a matter of health as well as of luxury. The strawberry, among other fruits, claims our attention.

Testimonies in its Behalf.—"Ripe, blushing strawberries, eaten from the plant, or served up with sugar and cream, are certainly Arcadian dainties, with a true Paradisiacal flavor, and fortunately they are so easily grown, that the poorest owner of a few feet of ground may have them in abundance."—*A. J. Downing.*

"To grow large, handsome, fine-flavored fruit in abundance, it is not necessary to employ a chemist to furnish us with a long list of specifics, nor even to employ a gardener by profession, who can boast of long years of experience. Any one who can manage a crop of corn or potatoes, can, if he will, grow strawberries."—*P. Barry.*

In addition to the foregoing testimony to the ease with which this delicious fruit may be grown, we quote from R. G. Pardee, the author of a deservedly popular treatise on the strawberry and other small fruits. Mr. Pardee says:—"During many seasons we have had on trial in our garden from twenty to sixty varieties at a time, and although some were comparatively unproductive, yet the average cost of producing them for years has been less than fifty cents per bushel, beside the cost of gathering and value of plants, which were taken from our own garden."

Now, we very much suspect, that Mr. Pardee neglected some of the incidental expenses of cultivation; or he could not have brought the cost to so low a figure. Perhaps he performed the labor as a recreation, and so did not charge it to his strawberry bed. The health and

pleasure thereby obtained, may have afforded *him* a satisfactory compensation. The *cultivators* must have something more than *recreation*; they must be *paid;* and we think they could not be at fifty cents a bushel. Yet the foregoing testimonies, conjoined with some experience of our own, satisfy us that strawberries can be grown at such rates that all, in city and country, if not indolent or specially unfortunate, may well afford to enjoy so wholesome a luxury without stint.

"The strawberry," says Downing, "is perhaps the most wholesome of all fruits, being very easy of digestion, and never growing acid by fermentation, as most other fruits do. The oft-quoted instance of the great Linnæus curing himself of the gout by partaking freely of strawberries, a proof of its great wholesomness—is a letter of credit this tempting fruit has long enjoyed, for the consolation of those who are looking for a bitter concealed under every sweet."

Those who contemplate entering largely upon the cultivation of the strawberry, would of course wish to consult such works on the subject as those of Downing, Thomas, Hovey, Barry, Eliott and Pardee. But as it seems desirable that not only all cultivators, but all persons even, who have the control over a patch of land, should do something to make the use of a fruit at once delicious, wholesome, nutritive and easily produced more general, we propose to give some brief directions for its cultivation—such as may at least enable the uninitiated to begin.

Situation.—Thousands who would do well to cultivate a bed of strawberries, have no choice. Their land *is* where it *is;* and it is not convenient for them to remove it; nor can they essentially alter the character of its surroundings. The most they can do is to fence against cold winds and to mitigate the severity of the sun by here and there a shade. But the owner of a mere patch has this consolation, that if he cannot comply with the *rules*, various and contradictory as they are, the strawberry will consent to waive all rules, in adapting itself to his wants. Mr. Peabody, a celebrated and most successful cultivator of this fruit, at Columbus, Ga., a latitude altogether too sunny for the strawberry, as was formerly believed, and as Mr. Downing himself seems once to have thought, says:—"I do not believe there is a plant in nature, that so easily adapts itself to soil, situation and climate as the strawberry." Persons therefore, having little extent of soil need not be discouraged. Those having a larger extent, allowing of some choice in situation, would do well to select warm soil with a southern exposure for early fruit, and a colder soil with a northern exposure for late, unless, as Mr. Peabody and others think, the strawberry can be made ever-bearing.

Soil.—The strawberry is so tenaceous of life, that it will live in

almost any soil. A sandy loam is best. A gravelly loam, with abundance of pebbles might possibly mature fruit earlier. But the difficulty of cultivating such a soil would more than balance this advantage. It will never be easy to cover a plot with the strawberry plant so thickly as to insure a liberal yield, and yet keep it as clean of weeds and grass as it ought to be. We would therefore recommend a feasible soil, clear of all obstructions to the hoe and the rake. A substantial loam, neither very light nor very heavy—one that would be regarded as fair corn land—is best; but there is little if any land that will not produce this fruit advantageously, if rightly prepared. Wet land should be drained; if the soil is too sandy, it should receive an admixture of clay; if too clayey, give it an admixture of sand. A single load of clay will go far to render a sandy soil firm; and ten loads of sand will go just about as far to render a clayey soil porous. The labor of course is much greater in the latter case, than in the former; but it is not very great in either, provided the material wanted is near; and a patch for strawberries, by applying the opposite ingredient to that in which it is redundant, can soon be made just what is required—neither too sandy nor too clayey.

Preparation of Soil.—If the subsoil is not decidedly porous, such, that on digging down three or four feet, no water will be seen, not even after the greatest rains, it should by all means be thorough-drained; but if the subsoil is so porous that water will never, under any circumstances, stand in the excavations made for testing it, there is not much benefit in the thorough-draining. If it is said that it admits the air, we reply that the pressure of the atmosphere is upwards of a ton (2160 lbs.) to every square foot of the earth's surface; and that under such a pressure the air will follow of course wherever the water runs freely through the soil. We do not say that in such cases, that is, where stagnant water is never found on or in the soil, there is no benefit in thorough-draining; but we do say, and we are willing to stand by it, that the benefits are not equal nor half equal to the expense; and although the strawberry requires a deep soil inclining to moisture, without the least stagnant water, yet we should regard our directions as faulty, if we indiscriminately recommended underdraining. We would underdrain freely, whenever there is occasion for it, and for no crop sooner than for the strawberry; but there is a great deal of land that does not require underdraining—would not for any crop be sufficiently improved to warrant the expense—and therefore we think it important that the distinction should be kept in view.

As the strawberry is known to throw out a great length of fibrous roots in search of food and moisture, sometimes not less than three or four feet, it is manifest that the ground should be ploughed very

deeply, and be made exceedingly mellow. In order to clean cultivation, care should be taken that no weed or grass seeds be present, either in the soil or in the applications made to it.

Manures.—Every one in the least conversant with rural affairs, must have noticed that strawberries, in their wild state, flourish mostly on new land, and generally disappear as the land becomes old. Hence we might infer, that leaf mold, the surface soil of wood land, decomposed turf from newish land, charcoal-dust, soot, wood-ashes, scrapings from old hedge-rows, well-rotted straw, anything which would tend to restore the soil to the condition of new land, would be favorable to the strawberry. Such we believe to be the fact. All green manures should be avoided. The strawberry consists largely of potash, soda and lime. But these ingredients would abound in a compost made up of the substances named above; and such a compost, at the rate of twenty or twenty-five loads to the acre, we believe would be sufficient to secure good crops for a series of years, with proper mulching, and the addition of some liquid manure in bearing time.

Transplanting.—The strawberry does not bear transplanting as well as some plants which seem to be of a less hardy character. With a proper application of shade, mulching and water, they may however be transplanted safely at any time from March to late in October. April is perhaps the best month for spring transplanting, and September for fall. Spring transplanting is more favorable to clean cultivation. Transplanting in the fall gives an earlier return, as in that case a partial crop, say from a third to half a crop, may with good cultivation be expected the first summer. As to the manner of transplanting, if the soil be such by nature or by artificial amendment, as we have recommended, we would prefer the flat cultivation. Let the surface be brought to as exact a level as may be; then mark the rows from twelve to thirty inches apart, the former being enough for small varieties on a limited space, and the latter not too wide for the field culture of large varieties; and set the plants simply from eight to twelve inches apart, taking care to press the soil moderately around the roots. The ground should be moist at the time of transplanting, either from recent rain, or an artificial application of water; and if scorching suns prevail on the succeeding days, the plants should be protected during the hottest portion of the day and watered in the evening.

Mulching.—In order to protect the plants from the sun and to more effectually equalize the moisture about their roots, it is well to spread a mulching of an inch or a little more in thickness over the entire plot. Spent tan-bark it highly recommended by some growers for this purpose; and we do not recollect to have heard of objections to it. Saw

dust is said by others to answer equally well. Some, however, believe that it causes mildew. Leaf-mold is good. Straw will answer the purpose, but is apt to prove an obstacle to clear cultivation. If cut fine enough for horse-feed, there could be no objection to it, other than the too great labor of so preparing it.

Watering.—The strawberry, after becoming well established, will bear a pretty severe drouth, provided the ground is so prepared that its roots run deeply. But it loves water; and especially should it be thoroughly watered in bearing time, unless there are frequent falls of rain. A garden engine is very convenient for the purpose. In cultivation, the plants should not be hilled up. The ground near the row should not be varied from the general level. Care should be taken in the cultivation, that the roots be not cut or disturbed very near to the plants. Clean cultivation, without much mutilation of the roots, is essential to success. A winter mulching of straw to be taken off in the spring, and a mulching of tan-bark applied a few weeks before bearing time are a great help to successful cultivation.

Renewal of Beds.—Once in three or four years the bed should be renewed. This may be done by allowing the runners to take root on the central line between the rows, and then taking out the old rows; or better by commencing a new bed in another place, and taking the old one for corn or some other crop favorable to clean cutivation.

It is ascertained that strawberry plants have three, or four, distinct characters. We shall mention three; 1st., the *Staminate*, or *male* plant (fig. 1,) *a* representing the Stamins, *b* the pistils; 2d, the *Hermaphrodite*, or *bisexual* plant (fig. 2); 3d, the *Pistilate*, or female plant (fig. 3.) The Staminates produce no fruit. The hermaphrodites are producers. The pistilates produce no fruit if planted alone, but are the best producers when planted in near position with the staminates or hermaphrodites; and we believe the best practice is considered to be that of planting one row in eight with some good variety of the hermaphrodiate, and the intervening rows with the best varieties of pistillates; as for instance, Longworth's *Prolific* for the hermaphrodite row, and Hovey's Seedling or McAvey's *Superior* for the pistillate rows. It is not our design to recommend varieties. Indeed there are so many among us who have sore toes on the subject in hand, that we should fear the consequences of making a step in that direction, even if more conscious of being a good judge than we are. On the cultivation we quote from Wm. R. Prince & Co.'s catalogue the following directions, which are unquestionably the result of long experience, and may be regarded, we believe, as good authority:

"The best periods for spring planting are the month of April for this and more northern latitudes, and the months of February and March for the more southern States. And for the plantations after

fruiting, we prefer the months of August and September in this latitude and north of it, and the months of September and October for the more southern localities. The early autumnal planting has this superiority—such plants will produce a fair crop the ensuing summer.

"The Pistillate varieties possess the great advantage that they may be allowed to run together in a mass, and will in this mode bear profusely; and this is the most profitable course of culture; whereas the larger Hermaphrodite varieties (with only two or three exceptions) will not produce a fair crop unless they are cultivated as distinct plants, and kept clear of runners. There can be no such result as a failure in the crops of Pistillate varieties (when accompanied by Staminates or Hermaphrodites). *Every Pistillate variety is productive*, varying only in abundance. The Hermaphrodites may all be deemed *moderate bearers*, except where we have denoted otherwise; and the few exceptions mostly produce fruit of but medium or small size. The Primate, and two or three other Hermaphrodites, comprise the only varieties, with large fruit, that produce large crops. In selecting an impregnator to plant among Pistillates, it is the better course to select a productive Hermaphrodite variety, as this will prevent any loss of space.

"The Hermaphrodites or Staminates should be planted in distinct rows or beds, and not among the Pistillates, as the more rapid increase of the former would soon cause the beds to be overrun with them."

With consent of the publishers, C. M. Saxton & Co., we copy the following from the pages of Pardee on the Strawberry and other Small Fruits. It is from the pen of Charles A. Peabody, Esq., horticultural editor of the "Soil of the South," a valuable Journal of Agriculture and Horticulture, published monthly by J. M. and W. H. Chambers, at Columbus, Geo. Mr. Peabody says:

"I plant the pistillate for fruit, and the hermaphrodite for impregnators; and the only two which I have found to bloom and fruit together the whole season are the Hovey Seedling and Large Early Scarlet. Ross Phœnix, Burr's New Pine, and a seedling of my own, not yet fully tested, I have also caused to bear continuously. I plant seven rows of the pistillate, and one row of the hermaphrodite, two feet apart each way. The first season I let the runners fill the ground; in the fall, go through the grounds with hoes, thinning out to eight or ten inches, leaving the vines to decay just where they are cut up. I then cover the whole bed with partially decomposed leaves from the woods or swamps. The winter rains beat down the leaves, the fruit-germ finds its way through them, and the first mild weather of spring the blossoms appear.

"I have before spoken of the volatile nature of the pollen. In very dry weather the particles float off on the winds, and much is lost to the buds below; hence the importance of watering freely when in bloom. Free applications of water will set the whole bed with fruit, which will require continuous watering to swell and ripen it. A strawberry bed may be moist, the plants in fine condition, and yet one good shower will make a difference of one-third in the quantity of fruit picked the day after. Consequently, in dry seasons, artificial watering must be resorted to, and no labor will pay better.

"I never use animal manure of any kind—nothing but the leaf-mold, and an occasional sprinkling of wood-ashes. The leaf-mold keeps the ground cool and moist, as well as the fruit clean, and does not stimulate the vines to runners. The potash and acids contained in it are just what the fruit wants. Should the vines be disposed to spread, keep the runners down by constant pinching off, and clear out the grass and weeds with the hoe. A few years of this culture will check their disposition to run, and encourage them to fruit. The bed, once thus formed and cultivated, will, to my certain knowledge, continue productive twelve years, and, I have reason to believe, as much longer as the culture is continued. Should the vines have taken possession of the ground, in spite of the efforts to keep the runners down, we go through in the fall with the hoe, thinning out the plants to ten or twelve inches, leaving every cut-up vine to decay on the ground where it grew; we then cover with the decaying leaves. When the plants begin to bloom in the spring, a top-dressing of wood-ashes will be found beneficial. I have tried strawberry culture with the plough, which will make a greater quantity of vines, but will give only one crop of fruit. It is generally remarked that the wild strawberry is finer flavored than the cultivated; but with this treatment the latter retains all the original flavor.

"It has been recommended by some cultivators to irrigate the strawberry grounds by letting water on the vines; but the strawberry, cultivated after the manner described, can bear as great a drought as any other plant. It is not the vines and leaves that want the water, but the flowers and fruit; and the water must come in the form of rain, through the clouds, from an engine, or a common watering-pot.

"I have noticed quite a contest going on among horticulturists as to the possibility of strawberries changing their sexual character by cultivation. Without taking part in the controversy, I must state that I would as soon think of high feed turning a cow to a bull, as to change the pistillate character of Hovey's Seedling by any method of cultivation. I have cultivated the strawberry under every aspect; with high manuring, and without manure; in new lands, and on old lands; have had the vines stand from twelve to eighteen inches high, and in meek submission to hug the ground; yet I have never found the least change in the blossom. A perfect pistillate or staminate flower, first blooming so from seed, will never bloom any other way. Cultivators are often deceived about their plants, from the fact that they frequently find varieties in the beds which they did not plant; but these spring from seed. The strawberry springs from seed with astonishing rapidity. Since my beds were started the whole country around me is covered with strawberry plants from the seed dropped by birds. These I find running into all varieties—pistillate, staminate, and hermaphrodite—most of them worthless, but some with good fruit.

"The proper time for transplanting the strawberry at the South is as soon in the fall as the weather is cool and moist enough. Here, this may be continued until spring. Plants are easily transported great distances in the winter. I have sent them 2,000 miles with safety. It will be observed by the diagram that I plant the staminate every eighth row. Some cultivators mix in the rows; but I prefer to

keep them separate and distinct, as they are more easily distinguished, and kept better in their places.

"Now, if the cultivator would know the secret of my having strawberries six, eight, and even ten months in the year, in the hot climate of Georgia and Alabama, it is this: proper location, vegetable manures, shade to the ground, without exhaustion, and water to the bloom and fruit.

"One reason why so many fail in garden culture with the strawberry is, that the beds are surrounded by trees and shrubbery, which may produce one crop of fruit in the spring, but rarely more than that, unless it should prove a very wet season. The strawberry-bed, whether in the garden or the field, should have no tree, plant, or shrub near enough to it to take the moisture from the earth. The plants require all the moisture from the atmosphere and the earth around them.

"Whether the strawberry was originally found in cold climates or not, I find they readily adapt themselves to any climate, and very soon become indigenous. I doubt whether there is a State in this Union that cannot produce the strawberry months, instead of weeks, in the year, with proper culture. And when we take into consideration the ease and simplicity of its culture, its continued bearing and productiveness, its exemption from all insect depredations, its delicious flavor and healthy influence upon the system, it ranks first in importance among the fruits of the earth."

THE PLEASURES OF FARMING.

CICERO says most truly and eloquently: "I might expatiate on the beauty of verdant groves and meadows, on the charming aspects of vineyards and olive yards, but to say all in one word, there cannot be a more pleasing or a more profitable scene than that of a well-cultivated farm. In my opinion, indeed, no kind of occupation is more fraught with happiness, not only as the business of husbandry is of singular utility to mankind, but, as I have said, being attended with its own peculiar pleasures. I will add, too, as a further recommendation—and let it restore me the good graces of the voluptuous—that it supplies both the table and the altar with the greatest variety and abundance. Accordingly, the magazines of the skillful and industrious farmer are plentifully stored with wine and oil, with milk, cheese and honey, as his yards abound with poultry, and his fields with flocks and herds of kids, lambs. and porkets. The garden also furnishes him with an additional source of delicacies, in allusion to which the farmers pleasantly call a certain piece of land allotted to that particular use, their *dessert.* I must not omit, likewise, that in the intervals of their more important business, and in order to heighten the relish of the rest, the sports of the field claim a share of their amusement. * * * Of country occupations I profess myself a warm admirer. They are pleasures perfectly consistent with every degree of advanced years, as they approach the nearest of all others to those of the purely philosophical kind. They are derived from observing the nature and properties of their own earth, which yields a ready obedience to the cultivator's industry, and returns with interest what he deposits in her charge."

INSECTS INJURIOUS TO VEGETATION.

DIPTERA, INCLUDING BEES, MUSQUITOES, FLIES, ETC.

We now enter upon another order of insects. Its name imports two wings, and all the insects belonging to it are provided with two small knobbed threads, in the place of the hind wings of other orders, and also with a mouth formed for sucking or lapping. Various kinds of gnats, flies, bees, etc., belong, of course, to this order. We shall here describe several insects that are troublesome to men and animals rather than injurious to vegetation, as musquitoes, midges, and the like.

The proboscis, or sucker, is placed under the head, and may be so drawn up as to be partly or even wholly concealed within the cavity of the mouth. It consists of a "gutter," usually ending with two fleshy lips and enclosing several fine sharp bristles, which are substitutes for the biting organs of other insects, and which are capable of inflicting severe wounds. Musquitoes illustrate this point. The peculiar irritation and inflammation which results is caused by the flowing of the insect's saliva into the wound, a provision designed, no doubt, to give the insect greater facility in obtaining his natural aliment, which is often supplied in the blood of animals. Two small jointed feelers are generally attached to the base of the proboscis. In insects which lap or sip their food, this grooved sheath is comparatively large and fleshy.

Gnats and flies have soft bodies, large heads, which are connected with the thorax by a very slender neck, large eyes, especially in the males, which occupy the whole sides of the head. The antennæ, in gnats and musquitoes, are long and slender, and many-jointed; in flies they are short, consisting of only two or three fleshy joints, the last of which is provided with a little bristle, or delicate feather. The wings are filmy, and many-veined. Just behind the wings are two little winglets, scale-like organs, which open and shut with the wings. Two balancers, or poisers, are fixed on the thorax behind the winglets, which are knobbed at the end. The thorax is the thickest part of the body, and, in the case of many females, is provided with a tube, retractile and tapering, by means of which she deposits her eggs.

Each insect has six legs, and each leg has two claws and little cushions by which, as the metallic plate adheres to the plate of the air pump, the insect can walk upon the ceilings of rooms, and on the smoothest surfaces, and in every position.

Gnats and musquitoes are active both by day and by night; flies, only by day. Their lives last only a few weeks. Several broods are produced in one season.

The larvæ of gnats and flies are fleshy, of a white color, and without wings. They are called maggots. They vary in form, structure, and habit. Usually, their breathing holes are near the extremity of the body. Many aquatic maggots are provided with a tubular tail, which is surrounded with feather-like appendages, through which they breathe. Their larvæ are furnished with small thorns on each end of the body, and smaller prickles on the rings of the back, with which they move about just before they burst their skins and assume a winged state.

Musquitoes, however, are not thus provided, but they tumble about in the water by means of two small fins on their tails. They are the little fish-like animals which abound in stagnant water. They cast their skins, roll up like a ball and float on the surface of the water, breathing through two tunnel-like tubes. If disturbed, they suddenly unroll their bodies, and whirl from one side of the vessel which contains them to the other. In a few days, the next change comes, and the skin splits on the back, between the breathing tubes, and the perfect musquito stands upon the emptied sack till it becomes filled with water and sinks, when the insect spreads its tiny wings and escapes, singing as it goes that monotonous tone which has disturbed so many quiet sleepers, or which warns all who are awake to guard against its troublesome attacks.

In New-England and Canada a small gnat, called *Simulium Molestum*, is seen in swarms, and is very troublesome. Every bite draws blood, and is followed by inflammation, which continues for several days. This insect is small, not more than one tenth of an inch in length; black color, wings transparent, legs short. They appear in May, continue some six weeks, and disappear.

The *Simulium Nocivum* in swarms succeed the *Molestum*. The Indians call them *No-see-em*. They are minute, so small that they would scarcely be perceived but for their wings which are whitish, and mottled with black. Towards evening they come forth, creep under the clothes of the inhabitants, and produce, by their bite, a momentary smarting, not unlike that produced by sparks of fire. They are most troublesome in July and August. These midges, or sandflies, as they are termed, do not draw blood, nor produce any swelling. The insect most troublesome to our domestic animals is the

Tabanus Atratus, of Fabricius, or the *Horse Fly*. It is too common to need a description. It is of a black color, the back being covered with a whitish down. Its length, seven eighths of an inch or more. The

Tabanus Cinctus, or *Orange-belted Horse Fly*, is less common, and rather smaller. It is black, except the first three rings of the hind

body, which are orange colored. A species more common than either is the

Tabanus Lincola, of Fabricius, which has a whitish line along the top of its hind-body.

The best preservative against the attacks of these flies, is washing the horse in a strong decoction of oak leaves. We have known this to be quite successful.

Some flies partake of the habits of bees, and are thence called Bee-flies. Their technical name is

Bombyliadæ or Bombilians. They frequent sunny paths in the woods in spring and early summer. They fly with great swiftness and stop suddenly, balancing themselves on their wings like the humming bird. They often hover thus over flowers, sucking their sweets. One species of these, very plainly marked, is the Bombylius Æqualis, of Fabricius, so called because its wings are equally divided, lengthwise, by two colors, the outer part being brownish black, and the inner part colorless or transparent.

Other species of flies, which are quite harmless, resemble more dangerous insects. A species of the *Milesia* resembles a hornet. Some of the Syrphians resemble bees and wasps, and thus many produce needless alarm. The Muscadæ is a group which includes a great many kinds of flies, which belong to numerous subdivisions, such as house flies, flesh flies, dung flies, blow flies, flower flies, fruit flies, cheese flies, two-winged gall flies, etc. Of these flies, some lay their eggs in butcher's meat, and are called Blow flies, and their eggs fly-blows. The eggs hatch in two or three hours, and the maggots come to their growth in three or four days. The House Fly is probably the same as the domestic fly of Europe, which lays its eggs in dung, in which its larvæ live and pass through their successive changes.

DEFENCES AGAINST FLIES, ETC.

Various plans have been recommended, with greater or less success. One mode is, in rooms *which have windows only upon one side*, to guard the windows with coarse netting, the threads being half an inch or more apart. Under such circumstances flies will not enter.

Another mode is to feed them with some destructive food, as poisons, etc. But by such means accidents are liable to happen to other domestic animals, and even to children. Hence it is better to use something like the following, which are equally effective: Lay plates about the room, filled with strong green tea, well sweetened.

We have also just received the following, from a correspondent in Maryland, which we take the liberty of incorporating into this essay. Our friend writes as follows:

"TO KILL FLIES.

"MESSRS. EDITORS:—Please publish the following recipe for the information of those ladies who dislike to use poison to rid themselves of flies. They may rest assured it will answer their highest expectations:

"1 egg well beaten.

"3 table spoonfulls of black pepper, ground.

"A sufficiency of bonny clappor to make up an ordinary batter as for cakes; sweeten well with sugar or molasses.

"To be served up on shallow plates—the flies will partake freely, and soon be on the floor. N.

"COTTAGE, August, 1856."

Sometimes, where facilities for so doing are better than elsewhere, the most effectual and most desirable form of relief is to drive out these swarms bodily, by the broom or by shaking napkins. We have known rooms effectually cleared of these pests in this way, through a whole season. If food is not suffered to stand exposed to their attacks, this process is not so difficult as might be supposed.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

RURAL ARCHITECTURE.

MESSRS. EDITORS:—I am glad you pay some attention to rural architecture. It is a subject of great importance, and seems not to have received the attention that its importance demands. Excellent books have been written on the subject it is true, but books do not find their way to the mass of rural population with the facility of a journal.

The greatest diversity of architecture prevails among the farm-houses of this country. The interior arrangement of many of them was not originally fully decided upon until after the house was raised, and is usually remodelled every time the house changes owner. If the proprietor is so fortunate as to be satisfied with his house he can find no one that it suits in case he wants to sell. The adoption of a better system of architecture by farmers would, no doubt, add much to the convenience and value of their property. A man does not derive so much importance from living in a "great house" as formerly, and consequently well-built houses are more in demand than large ones. As we do not believe that farm matters advance backwards, we set that down as an improvement. The construction of barns has been greatly improved in past years, and new ones are generally constructed with the floor running the same way with the roof.

This style is fast doing away with the village style of barn architec-

ture, for when a man finds himself in want of more barn room he can build an addition to his barn of twenty or forty feet instead of building a new barn, or spoiling the symmetry or convenience of his old one. The old style admits of no additions, and two or three barns, with nearly as many different shed and yards are now frequently seen among our farmers. I trust argument is unnecessary to illustrate the great advantages derived from having a farmer's cattle all under one roof. There is much that goes by the name of economy in the construction of farm buildings, which to say the least has no right to the name.

The possibility of being penny-wise and pound-foolish applies to architecture with as great force as to other farm operations. The man that feels poor when building, generally is poor when the buildings are sold.

BROOKFIELD, Mass. YEOMAN.

EXPERIMENT WITH GUANO AND SULPHURIC ACID.—An intelligent farmer of Prince George was induced last fall, in accordance with the recommendation of Prof. Norton in his lectures on scientific agriculture, to try an experiment with guano and sulphuric acid, in the proportion of 100 lbs. of the former to 15 lbs. of the latter. The combination was effected simply by pouring the acid on the dry guano, and incorporating them together with a wooden implement. A spade or a hoe would be destroyed by the corrosion of the acid. This mixture was applied to an acre of land which was then sowed in wheat, while alongside the guano alone was used, at the same rate. The product at harvest is represented to have been fully twice as much from the mixture as from guano alone. Not anticipating such a result, no memorandum was preserved of the minutia and the progress of the experiment, and it is adverted to now chiefly for the purpose of inducing other farmers to repeat it in a more careful manner. It well deserves to be fairly tested. We have not Prof. Norton's work at hand, but it is understood that the value of the combination consists in the action of the acid on the phosphates of the guano, as in the preparation of bone, thus reducing them to a state immediately available for plant food—while no injury is caused to the ammonia. The acid may also, according to the theory of some gentlemen, supply a deficiency of that property in the soil which has been exhausted by repeated applications of alkalies. However this may be, we would respectfully suggest the propriety of making further experiments.—*Southern Farmer.*

THE Royal Agricultural Society of England, not satisfied with any invention yet brought forward for ploughing by steam, has offered a premium of $2,500 for the best steam plough. Thousands of minds are on the track, and that problem will be solved.

OHIO VALLEY FARMER.

A NEW paper, with the above title, on a large sheet, beautifully printed and promising well, has reached us from Cincinnati. The following is from its pages.

THE HORSE AND HIS IMPROVEMENT.

It is not possible for any one to describe in advance, the size, form, or particular conformation of parts in the horse, best suited to the fine development of the foal, unless those peculiarities of the mare are carefully considered; and hence the absolute necessity of attention and study on the part of every individual who attempts to breed animals. The experience, suggestions, and practises of the most successful, are not sufficient guides to insure success to those who rely on them alone. "What man has done, man may do," and more; but although in dealing with inorganic matters—chemistry, for instance—any given experiment may be described, and repeated by others, with almost infinitessimal exactness, there are such a multitude of ever-varying influences modifying all the operations of animal life, that it becomes a necessity to study those influences and their relations, and then to manage them as they occur. And now that the curse of the agricultural community, the prejudice against "book-farming," as it has been contemptuously styled, is rapidly dying out, and those who do not pay for and read at least one periodical, devoted to agricultural improvement, and the dissemination of that knowledge most useful to the farmer, are beginning to wince under the conviction that their reading, and, consequently, more intelligent brethren are leaving them to hug the phantom of their delusion in the dark shades of old fogyism, there are encouraging indications of general improvement of both master and horse. It does not pay to be in the rear of the battle while those in front are gathering both the laurels and the spoils; neither does it pay to be ignorant of facts, of scientific truths, which, when understood, put money in the pocket, and happiness in the heart; and so fast as the clouds of vision are dispelled, and the crusts of bigotry and prejudice broken up, will attention to this, and kindred subjects, secure desirable and profitable results. Ignorance is not bliss; neither is it foolish for even farmers to be wise.

The farmer who has good land, but inferior seed, does not expect the same return as from good seed; and, if the seed be the best, but the soil poor, he does not expect the product of a better soil; neither does he, while depending on his labor on the soil for living and profit, sell the best soil he may possess, and rely upon poor or worn-out lands—unless he have the means to bring that land into a more productive condition—and expect the heavy crops of his rich lands. And, yet, while they do *not* so with their lands, they do it with their horses; and the same policy, that, in reference to land, would be regarded as foolish in the extreme, and suicidal to the best interests, they practise with their stock, and reap the rewards, unfavorable though they be, and unnoticed and disregarded as they have strangely been.

If it is more laborious and difficult to raise a second-rate crop from poor soil than a good yield from rich land, it is equally more unpleasant and expensive, comparatively, in the end, to raise inferior animals

than good ones. If a person feels that he is in any way responsible for the kind and condition of the stock he keeps, as all must, to some extent, he cannot but entertain a degree of pride and self-satisfaction in the possession of the best specimens of his own raising, and that feeling is a most potent stimulus to further improvement. But the possession of inferior stock produces quite as marked an influence upon the owner in the opposite direction. Each and every ill-formed or bad-conditioned animal is not only a "standing monument," but a living, moving, telling placard, setting forth his want of knowledge or care, which the most ignorant may read as they run; and a "hard-shell" indeed must he be who is insensible to the effects.

There is one source of disappointment, however, to those having good mares, which is but little understood, and which, so far as I know, has been noticed in agricultural journals only by Professor Cleaveland some time since, in the *American Agriculturist* and *Albany Cultivator*. I allude to the effect of progeny upon the mother. Farmers have frequently taken much pains to secure the services of a blooded horse for a favorite mare, and been disappointed and mortified to find the foal resembling neither sire nor dam in the particular points sought for, but being rather a representative of an inferior horse, who had served previously. Many valuable facts are related in the articles referred to, illustrative of this subject, and showing its existence in the human family, as well as among the lower animals; and the opinion is entertained that inasmuch as the *same blood* must circulate through the veins of both mother and offspring, that the system of the dam becomes *thus* modified, and rendered, to a greater or less degree, similar to her mongrel young. This condition seems to continue, and hence, having her blood contaminated in the first instance, by that of the foal resembling the male parent, and retaining that contamination, thus affects future offsprings—the effect more observable if in the second instance the mare has been served with a horse much unlike the first one.

While there is no question in the minds of the few who have studied this subject, as to the *rationale* of its action, and its general application, it has doubtless been the source of many failures, and discouraged hundreds from further efforts to improve their stock, as well as furnished occasion for unfavorable and injurious reflections upon really excellent animals. It is an important fact, and a very good illustration of the necessity of beginning right, and of the disadvantages of a single misstep; besides, furnishing ample and reasonable evidence of the fact, that he who changes the sire each season, can form no safe opinion as to what the progeny may be, farther than that they may have the general outline of the horse, and certainly be horn-less quadrupeds. Those who are known as the most successful stock raisers, have always carefully avoided such changing of sires and confounding of stock.

Not to occupy too much space in a valuable journal, at present, a single remark as to the profits of stock raising, and especially horses, will be added. It will be evident, the writer thinks, to any one who will take the trouble to make careful estimates of the value of land in wheat and corn growing regions, of the expense of raising and getting to market each of those crops, compared with the receipts for them, that much more attention to the raising of horses,—good ones, both

for draught and saddle,—would be highly remunerative. And, considering the very great demand for horses, that such demand is not confined to any one locality, but is general, and increasing, there can be little doubt, that present prices will be maintained—at least for several years—and those who go into the business with a will and a *reason*, can scarcely fail to be well rewarded for their pains. Will they not look to it, think of it, act on it? Some who have worn themselves out in the toil and exposure of wheat, corn, and hog raising, and others younger and more active, who see a like fate before them, may take the hint, and profit by it. The same routine of life and labor best and most profitable for our fathers, may not be equally so for their sons, in the changed condition of surrounding circumstances.

C. D. L.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

STEAM PLOUGHS.

MESSRS. EDITORS:—This subject has been publicly announced for discussion at the Farmers' Club of the American Institute. I was invited to give my views upon it. Deeming it possible that in the second engineering city of the world, and in the institution which, before all others in the city, is disposed and qualified to promote this invention; and in that branch of the institution which is devoted to agriculture, there might be found liberality to do something more than talk on this subject—I accepted the invitation and attended. Three subjects were advertised, namely: Butter for the city, Bread for the city, and Steam Ploughs. I presumed that equal time would be allotted to each. But when seven-eighths of the time—two hours—had been spent in talk about butter, milk, calves, moss, peaches, preserved salmon, and lightning-rods, and the chairman launched into a speech on the latter subject, instead of keeping everybody to the subject announced, I came away, fully convinced that the less there should be said about steam-ploughs in that debating society, the better would be their chance of attracting the attention of those who might *do* something for them.

In casting about me to find a party or organ that might conveniently and fitly perform the task that this institution should have enjoyed long ago, I recollected the name of your magazine, and thought that if it can be done at all, in this age of dogmatic skepticism, you could do it, if you would take hold with a will to carry it through. A few essays on the subject, however excellent and entertaining, will do no good unless seconded by a collection of money. It is advocacy, and practical business that we want: we want a receiver of funds, an advertising medium, a competent party to call together the mites that men are going to *give* for the public good, or *hazard* in a liberal

enterprise; and all these functions you can perform without deviating from the legitimate course of your magazine, or incurring much expense. If, in the end, profit should result, you would be compensated, and so should every one be, who devotes talent or capital in any way to the enterprise.

As the invention now stands, no speculator or machinist can make money by promoting it. There is nothing about it that can be secured by patent, so as to enable those who incur the extraordinary expenses of its introduction to obtain remuneration for their outlay and hazard. Every one may copy the machines as soon as they come into use, and none can obtain more than mere workmen's prices for them. Hence no man of business talent will engage in it, unless he has an order with money partly in advance. To meddle with such work would prove a man to be incapable of success; that is, would prove him very deficient in business talent, unless he did it from a liberal motive, such as that which has induced Mr. Peter Cooper to erect an Institute for the Mechanics. Two or three English gentlemen have engaged in this enterprise from this motive, and have met with such success as warrants further efforts. Their operations will be worthy of publishing, at a future time, if you deem the undertaking within your province.

The money must be *given*, or nearly so; unless Congress can be induced to grant a patent for what is old—which it has done in one case that I know, and which it will probably do in this case, if applied to by a responsible party that has a sufficient fund pledged to the work. If $20,000 can be collected and paid into the hands of proper trustees, to be expended in the introduction of steam ploughs, I have little doubt that Congress will give to the enterprise that encouragement which the patent laws are intended to give, but which, in this case they do not give; owing to the fact that the invention has grown up little by little, and been given to the public. This point is not sufficiently observed. No invention, however sure men may be of its utility, will ever be introduced at great expense, unless there is an assurance of more than mere workmen's profit; for the first machines always cost more than those built after the proportions are determined, and the men trained to the work.

A gentleman out West offers, in a letter to the *Inventor*, to be one of fifty to give $50,000 for a steam-plough that shall work as cheaply and as well as horses. This he offers as a gift, expecting to be benefited to a greater amount by the invention. He, and probably others, would contribute liberally to a fund that proposed to pay a profit in case of success. If such men wished to be public benefactors, and to receive no money in return, they would give to the fund as an encouragement of others to invest—that is, they would diminish

the hazard, for the sake of inducing others to incur that hazard. And to make this liberality, and this liberal enterprise available for the purpose which all desire, it is necessary that some party should make the proposal in a business way. And, gentlemen, I know of none who are better entitled to this office than you are, and I respectfully urge you to use your pages and your office as means to collect the necessary funds, to be placed in charge of trustees as soon as it is ascertained that the work can be made to advance.

There is abundance of engineering talent ready to engage in the problem, on condition of being paid cost, in case a patent is obtained or suggested. Even builders may be found who will contribute their profit on this condition—being paid enough for wages and materials. And the various officers and agents necessary for such an enterprise would serve on the same terms, except in cases where they were taken from their usual occupations.

All these things considered, it appears to me that you should invite contributions to a steam plough fund, on condition that it should be managed liberally, and that the profits accruing should be divided justly among those who contributed money or talent or other aid. The plan you proposed some time ago, seems suitable for this case.

Very respectfully, yours J. K. Fisher.

EDITOR'S COMMENT.

This communication of Mr. Fisher opens a wide and rich field for those who would attempt a great boon to the agriculture of this country. We have expressed our opinion in former numbers, that much of the land of New-England and other sections was unsuited to steam ploughing. We think so now. But we are also confident that millions of acres in this country might be thus cultivated to very great advantage. The use of steam in agricultural operations is much more extensive in England than here, while such lands as we have above referred to, ought to be made capable of being cultivated by the same means as in that fertile island. Half a dozen neighbors might use the same steam plough, as, at the North, dozens now use the same threshing machine.

We go heartily for the proposition of Mr. Fisher, and invite correspondence from all agriculturists in relation to it. If they are ready to embark a hundred dollars in such an experiment, one half or even a quarter of that sum, let them signify such a disposition, and if a response is received which permits further action, we will take still further measures, as circumstances may authorize. We would suggest that every contributor of a hundred dollars should be a director, or have the appointment of a director as he should prefer, and that the Board of Directors should have the entire control of the fund.

M. P. P.

Senior Editor's Table.

EDITORIAL CORRESPONDENCE.

Long Island Sound.—How the air over these ever-moving waters contrasts with the fœtid exhalations of a great city, and how we wish all the tired denizens of New-York were here to enjoy it with us! Whatever they may have there in the way of yellow fever, and we suspect they have more in the imaginations of the fearful than other where, there is none here. It astonishes one just from under the city government, to breathe pure air.

Norwich, Conn.—After a good night's sleep, passing New-London, the city of whale oil, in a state of somnolency, we reach the good old city of Norwich, just as the sun first decks the earth with his beams. Breakfast and barber's offices over, we call on J. H. Almy, Esq., wholesale grocer. While here, the father of Mr. Almy, whom we never saw before, insists upon our being an old acquaintance, because his son, then in ill health, had traveled with us in France, and had told him all about us. The acquaintance being accepted, he takes us to a long forenoon's ride about Norwich and its suburbs, giving us a deal of information of its history and present state. It contains 12,000 people. Paper making is a leading branch of manufacture. A more beautiful place we have hardly seen. Its beauty consists not in fine dwellings merely, though these are of a high order, indicating a pure and elevated taste, but in the beautiful cultivated and extensive grounds. Why will Americans be so stingy of their lands as hardly to afford an open square in the city, and but a quarter acre building lot in the village? We know what the answer will be;—business, business—we must be near our business; and so we huddle in, thick as a nest of young porkers in a cold night, that each may be near his store, his office, or his factory. Better go a little farther, and have a place worth going to when you get there. Give your wives and children air, even if you will deprive yourselves of it. These homes in Norwich are scattered about from one to two or three miles from the business centre. Many are built on lots of two, three and five acres. The air can pass between them. There is more beauty in an acre or two of lawn and garden, tastefully laid out, and embowered with shades and fruits, than in the best house that can be built for a hundred thousand; more health, more to please the eye and refine the heart. In New-York there are two or three hundred people to the acre. They see nothing but brick and mortar and filth; breathe nothing pure:—shame! every family, the poorest even, ought to have at least an acre of God's heritage. We have in these United States 76 acres to a person—something like 500 acres to a family—and yet how many rich people, in the scramble for wealth, will not allow themselves the luxury of an acre, and how many poor cannot get a foot, till they get it for burial. We hope none of our readers doubt human depravity. God has given 32 acres to a person all over the globe, more than half of it is yet untouched, and more than half the race are landless. But the people of Norwich take a little land with their dwellings, though it shoves them farther from their business. Nearly all these beautiful residences, we are told, belong to men

who have carved their own fortune. It speaks well for their enterprize and well for our institutions. Let us not think lightly of the Union. We doubt whether there is a town within any monarchical government in the world indicating a higher civilization, or more intelligence and comfort, than this same little Norwich. Education without money and without price is the boon of all the children. The school-house of the first district is good enough for the abode of royalty. That of the second was not quite as good, though it wonld seem good enough; but the people of that district have bought a large lot on which to build a better. About equi-distant between the two, is an academy building, nearly completed, the edifice and broad grounds about it enough to tempt Apollo, Minerva and all the Muses to dwell there, if natrual beauty and fitness can tempt them. Here, too, the tuition is to be free. Among the curiosities of Norwich is the sharp, cone-like hill on which stood the church of the Pilgrims. They literally went *up* to the house of God. It was that they might worship God, without giving their savage foe an opportunity to steal upon them or their houses unseen. At this point the sentinel could call them to arms in time to make a vigorous defence. Not far from the foot of this hill is the grave of Uncas, the friend of the white man, over which stands a beautiful monument. Friendship for the whites made Uncas an enemy of Philip. Philip was a patriot, if eloquence, the leading on of the braves, and fighting unto the death for his country entitle him to that appellation. But Uncas was a patriot also. He took a different view from that of Philip. The highest good of his country, he supposed, was to be obtained in friendship with the whites. Philip thought they should be exterminated. Both were kings every whit, and deserve as honorable remembrance as the majority of kings. Posterity should be charged to keep in repair the monuments of both. It was not long since that a touching incident occurred at the tomb of Uncas. His descendants retain a right to be buried by his side to this day. A poor Indian brought his mother there to bury her. The owner of the ground forbade him. He declared that he had a right, as his mother was a descendant of Uncas, and commenced digging the grave. The owner told him that his ground should not be made the burial-place for miserable, drunken Indians. He pleaded with tears in his eyes; but it was of no avail. The owner sent two men with shovels, ordering them not to harm the Indian, but to throw the earth back as fast as he threw it out. The strife went on, the Indian throwing the earth out and the men throwing it back. Discouraged at last, the Indian lay down, declaring that he would die there and be buried with his mother and his ancestor. At this stage, much to the honor of their hearts, the people of Norwich interfered, and persuaded the owner to permit the burial. Sad, indeed, was the fate of these heroes. Philip died in the strife with the white man, and Uncas obtained no enviable boon for his people by saving them alive. Nearly all in that region, in whose veins flowed a drop of Indian blood, are now extinct.

Willimantic.—This is an active little manufacturing village, midway between Norwich and the northern line of Connecticut, at the intersection of the New-London and Palmer with the Hartford and Providence railroad. We cannot but wish that it were possible for a larger portion of our fellow-men to be out in the open air, tilling the ground amid heaven's pure breezes, instead of working among spindles, and inhaling the fumes of fish-oil. But if we are to have

clothes as well as bread, somebody must make the machinery and somebody must work it, in spite of soot and fish-oil; and we solace ourselves with the thought, that if all our manufacturing were done in our own country, we should not have the less farmers for it, but more, because of the increased demand for farm produce. Such villages as Willimantic are just what the farmer wants. They make the plough go; and it should be remembered that it could not go long if all were to take hold of it. The industrial arts thrive only by each other's favors. We pass Stafford, with its curative springs, just before reaching the State line, and Monson, with its celebrated academy, just after entering the Bay State. Whether Stafford springs will cure the sick is more than we know; but to reside at the beautiful Spring House, with its extensive grounds, cooling shades, and musical streams, we should think might have a tendency to cure all diseases, mental or physical, moral, political, or any other that flesh is heir to.

Palmer.—It happened to us here to witness a trial of the stump and rock machine, patented by W. W. Willis, Esq., of Orange, Mass.,—a potent engine for lifting from the soil all obstructions to the plough. Some years ago the old Bay State took it into her head to build three alms-houses. One of them is in a corner of Monson, near Palmer village. It cost some sixty thousand dollars, and might have been worth a quarter of the cash when done. But it may be supposed that nothing was lost—that what the State did not get the contractors did. Massachusetts must not be supposed to be alone in being gulled. But why did Massachusetts build a great three-story house, in the form of a hollow square, to shut up her poor in the enclosed space, a little thicker than we, poor creatures, who are jammed into a great city? Why not build them snug little tenements, on both sides of a street, with some space between, for the wind to blow through between the diseased and the sound, and some land to work on, that families might be put together and taught how to live, partly at least, by their own industry, till, as would happen in many cases, they would learn to live entirely by their own efforts, and would pack off and take care of themselves? It would cost but little more to build thus, and the expense of maintenance would perhaps be less. Would the inmates run away if not imprisoned? If they would, we should say let them run. This building soon became a little city, like a suburb of Dublin or Cork. Subsequently, we believe, in view of its fine location, and the superior skill of Dr. Brooks, its superintendent, it was concluded to remove the less hopeful adults to the other alms-houses, to bring all the poor children here, and make this a sort of high school—not very high in the character of the materials to work upon, but high in its aims to make the children good for something, if possible, for themselves and the State. Massachusetts has always been disposed to be a little meddlesome, in a way which, for our life, we hardly know how to find fault with—to assume a sort of parental responsibility for the education of *all* the children in her borders, come from where they may. Whether she thinks schools cheaper than prisons, or learning cheaper than hanging, or that her children will steal her money if she does not educate them, for some reason, she is now indulging her motherly propensity on six or seven hundred of these pauper children. Dr. Brooks, with a good corps of male and female teachers, is making an excellent school, so good that some wealthy parents are a little envious, saying that they cannot afford such advantages for their children. But never mind; give the poor things as much

learning as possible; there is little danger that they will rise too high and eclipse all others. Connected with the school is a large farm; and Dr. Brooks is a good farmer as well as teacher of boys and girls. Much of the land being like most of that State, rock-bound and rocky in texture, having boulders for the *warp*, with a little earth for the *filling*, and having many stumps, not likely to *move* till they *are moved*, he had just bought and was bringing home one of Willis's rock and stump machines. The neighbors were gathering from far and near to see it work. Having a liking for that sort of fun, (the improvement of rough lands,) we followed the multitude—once—and went too. The machine worked admirably, as we have seen it before, lifting rocks of ten or twelve tons' weight out of the beds in which they had slept since the drift period, probably not dreaming of ever being disturbed, and tearing out deep-rooted stumps as easily as if they had no objection to making a somerset. This machine is a first-rate harbinger of the plough, and we learn that it is out on its errand of preparation in many parts of our country, and that extensive orders are received for it from other countries. The right to its use has recently been disposed of for Kentucky, as it had before been for most of the northern and western States.

Amherst.—Twenty miles by the Palmer and Belchertown Railroad brings us to Amherst. Three Rivers, Belchertown, Thorndike, and other manufacturing villages, on and near the route, are doing for the farmer what nothing else can do—bringing a market to his very door. Our arrival at this not very ancient, but pretty well grown and efficient seat of learning, was in the midst of its annual festival; but as the festivities of a college Commencement—the kindly greetings of old friends and the renewal of old acquaintances, the sad and joyful reminiscences, the teachings of ripe scholars returning after years of commingling with the world, and the soarings of full (?) fledged graduates—are more easily enjoyed than described, we pass to other topics. The Mount Pleasant Institute in this place is one of the very best schools for boys in the country. Amherst is among the first farming towns in Massachusetts. Unlike most of the State, the land, rising moderately on the eastern slope of the Connecticut valley, is highly feasible. Some portions of it are swampy and require draining. Why did not the fathers reclaim this land? Because they could not sell produce enough from it to warrant the expense. Why do not the present owners under-drain it? Because they retain all the cautiousness of their fathers, without the same occasion to exercise. What their fathers could not prudently do, when there were almost no markets, they are simply foolish for not doing now that there are schools and manufacturing establishments all around and among them. There is little waste land now; but it is high time there was none. The farmers are a little over-cautious in the investment of money in labor and fertilizers. We do not counsel rashness, but we advise, that sometimes more is risked by holding back than by "going ahead." Some of them have experience of this, not having profited much by the high prices of past years, because they found themselves without much to sell. Still the farmers in this region are an elevated class of men. Many are highly intelligent; and some are commendably enterprising, acting as *the present* requires of them, and not as *the past* required of their fathers. Amherst is the center of the Hampshire Agricultural Society, one of the most efficient in the State.

Hadley is a quiet old town, just about two hundred years old; and is next to Amherst, either after or before, in agricultural capabilities. We would as soon cultivate their land as any at the West; but whether we would as soon have it at the price it bears, is another question; for they ask all the way from two to three hundred dollars an acre for it. Hopkins Academy in this place is a flourishing Institution.

Northampton is a fine old town, the cotemporary of Hadley, having the same agricultural capabilities, the land in both being about as good as the best. Rain-Bow Meadow, containing several thousand acres, was once sold for a wheelbarrow. It could not now be bought for much, if any, less than three hundred dollars an acre. The village, in point of intelligence and morals, and in the exhibition of a modest, rural taste, is a model. You would not suspect it, by passing through by steam, nor by a short stay, but if you were to circulate a while among their old elms, pretty abodes, and intelligent people, you would admire Northampton.

At Holyoke, (the new city yet to be built,) midway from Northampton to Springfield, is a triumph in its way;—the Connecticut river, turned by a stupendous dam into a canal, from which it can all be used twice over and much of it three times in turning wheels, before it returns to its original channel. Whether the enterprisers of the project are to profit by it is yet uncertain; that the farmers of the neighboring towns will, there can be no doubt.

Springfield, for nearly two hundred years inferior to Northampton, has of late years grown into a city of some fifteen thousand people. It makes one smile to hear them talk of their old rivals in Northampton, as living "out in the country." The crossing of railroads, the manufacture of fire arms, in connection with the general business energy of the people, have made Springfield what it is. C. W. Chapin Esq., is the wealthiest citizen. We have heard him say that when married, neither he nor his wife could have raised a hundred dollars; and yet we have never seen those who enjoy the results of honorable, business enterprise with a better grace. It is a fact, that our New-England fathers gave their children a "bringing up," as they called it, that was worth half a million a piece. Are we doing as well by our children?

We must hasten on, or we shall never get home. Across the river from Springfield is the staid old town of West Springfield, noted for its good morals and good farming, with plenty of manufacturing villages scattered over it.

Ten miles to the West is Westfield, noted for one of the oldest and the best academies in the State. To be such a farmer, as many who live in beautiful style here, and own the best of land a little out, should satisfy any ordinary ambition. There is an immense establishment here for the manufacture of Havana cigars, (from Connecticut River tobacco?) and another for the manufacture of whips. We do not know why the two should go together, unless those who smoke the cigars ought to feel the whips.

From this town of learning, smoking, flagellation, and good farmers, the road winds up the Westfield River, at a grade which sorely tests the drawing power of the iron horse one way, and his holding power the other, to Washington, and thence down the Housatonic to Pittsfield. The land nearly all the way is such as would make a geologist rejoice and a farmer despair. Manufacturing villages, in Russell, Huntington, Chester, Becket, Hinsdale, Dalton, and other towns (rather townships) are so squeezed in among huge rocks that there is no danger of their ever getting away; and we see not how the people could ever get away

if it were not for the Western railroad. All we know is that, somehow or other, they came there before the road was built; for we had an uncle who preached the Gospel in one of those mountain gorges long ago, and we suppose he did not preach it to rocks and waterfalls and trees alone; and certainly any who might have lived there would need comfort. It must have been a heroic age.

Pittsfield, famed for its excellent schools and its general enterprise, is situated in a broad mountain basin, 1200 feet above the Connecticut, having an outline of horizon of surpassing beauty and grandeur, and blessed with a soil the very reverse of that just described. It has quadrupled its inhabitants within a few years; and the people are as ambitious as they are prosperous. Their limestone water and mountain air make them live *fast.* They claim to have the oldest agricultural society in the country, and you frequently hear them talk of annexing New-York State to Berkshire county; but we do not know whether they will succeed. This county is good agriculturally; is rich in iron and marble, and richer in its waterfalls. Men and animals are of a little sturdier growth here than in the river counties in the East. Excellent cattle are raised, and Ex-Governor Briggs, who resides at Pittsfield, claims that Berkshire is the best county in the world for growing men; and he points to facts which give his reasoning at least the color of soundness.

The Savans of the American continent are in session at the State House in Albany, as the "American Association for the Advancement of Science." Whiskered or shaven, they look like men of earnest purpose; and we verily believe they are as hard working men as we have, and that they are making researches and investigations, which will benefit every class of society, and enhance the value of human life. All honor to the Albanians, who are giving a generous entertainment to these men during their protracted session. We have no space to particularize. If possible we will give our readers some fruits from this meeting hereafter.

Europeans have seen greater cathedrals than we, and have traced older and more pretending families; but no European, unless he has been to this country, has seen a quarter as large a river steam-boat, or one fitted up with a tenth part as many comforts, as the New World, which brings us down the Hudson.

Agriculture of Massachusetts.—The Annual Report of the Secretary of the Board of Agriculture, which we have already noticed—and of which the Legislature has ordered the printing of ten thousand copies for general distribution—is more than usually replete with the statistics of the Agriculture of the Commonwealth. From these it appears that there are in the State 80,321 horses, valued at $7,284,889; 77,511 oxen and steers, valued at $3,246,341; 184,010 milch cows and heifers, valued at $4,892,291; yielding 8,116,000 pounds of butter, valued at $1,678,557 83; 5,762,776 pounds of cheese, valued at $464,250 55, and 13,203,665 quarts of milk, valued at $755,887 90. The number of sheep is reported to be 145,215, valued at $309,843, while the value of wool produced is $155,046. The number of swine is 51,113, valued at $581,536 71.

Of the cultivated land in the State there were 91,056 acres in Indian corn, and the value of this is stated to be $2,820,108 97. There were 2600 acres of wheat, valued at $73,928 49, and 42,143 acres of rye, valued at $560,201 53, while the number of acres in barley was 4971, the value of barley being $110,158 45. Oats were more extensively cultivated; there were 37,623 acres, valued at $563,729 24. There were 41,892 acres in potatoes, and the value of potatoes was $2,521,906 42. Of onions, turnips, carrots, beets, and other esculent vegetables, there were 8368 acres cultivated, valued at $937,406 98.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

OKRA PLANT—OKRA COFFEE—GUMBO SOUP.

TULIP HILL, near IOWA CITY, Iowa, August 15, 1856.

MESSRS. EDITORS:—In the last May number of your valuable Magazine, page 698, I find an article extracted from the *American Agriculturist*, relative to the cultivation of the Okra plant.

The correspondent observes that this plant is not yet extensively cultivated at the North, but that it is deserving of a high popularity, and that it is much cultivated in the Southern and Middle States, *chiefly* as an addition to soups.

It is true, as stated by the writer, that the green pods are used in the preparation of the Gumbo Soup, but they are not the principal ingredients of that famous Southern dish. And nine-tenths of all the Okra raised in the Southern and Middle States, is cooked, seasoned and served for the table as we do Asparagus.

At what period the Okra or *Gumbaud** plant was introduced into North America, I am unable to state from any books in my library. The Encyclopædia Americana has no article upon it, although it has been a common garden vegetable in the Southern and Middle States for more than fifty years.

It was first used as a substitute for coffee, and was called *Okra Coffee.* And, unquestionably, it is the best substitute ever discovered. Some years ago, a writer, I think in the *Prairie Farmer*, pronounced it equal to the finest Mocha; and I can add, that I consider myself a good judge of the genuine article, and I have at least *once*, without detecting it, drank the Okra, with the usual gusto. In fact, as far as I can discover, the taste and odor of the two articles are identical. I should be pleased to see a comparative chemical analysis of the two berries, so dissimilar in every thing save in the taste and smell.

The cultivation of the okra is very simple. The seed should be drilled like garden peas, in a light soil, about the first of May. The plants, to be thrifty, should be at least two feet apart. When the pod is about half grown, it is fit for use. It is then as tender as a young cucumber, and will not burst in the boiling. Take a dozen of these pods, which is a good mess for a family, and boil them thirty minutes in pure water, (using a tin pan, instead of an iron vessel,) then lift them carefully with a spoon into a deep dish, and immediately season with sweet butter, rather copiously. Then salt, and pepper, if preferred.

To make Gumbo soup, cut two or three pods in thin slices, as you would cucumbers, for one gallon of *any* kind of soup. Tomatoes, in large quantities, and green corn, cut from the cob, are the usual admixtures of Gumbo soup. Too much Okra makes the soup insipid. There should be just enough to give it a rich mucilagenous taste.

But the okra is principally valuable for boiling. To relish it, one must use it for a season, and then it must be well cooked. Those who are accustomed to its daily use, from July to October, would not exchange it for any vegetable product whatever.

* Okra is the Spanish name of the plant, and *Gumbaud* the French. Webster's Dic. defines "GUMBO a dish of food made of young capsules of *ocra*, with salt and pepper, stewed and seasoned with butter."

I have cultivated it in Iowa for the last ten years, and it flourishes admirably. It should be in every garden, by the side of the Tomato and the Egg Plant—three invaluable and wholesome vegetables, introduced into this country about the same time. E. M.

THE STATE OF CROPS IN CENTRAL NEW-YORK.

MESSRS. EDITORS:—We hail the appearance of your improved journal with delight. It looks fine, and *is fine*. Meantime we wish to say a few words on the crops, &c., in this part of the country.

First, then, corn looks exceedingly fine in most parts of this State, with, perhaps, the exceptions of the northern part and some of the mountain regions, where it does not look so well. Last season, in the middle of July, corn looked exceedingly slim all over the country, and measured not more than about ten inches high; while this year we see it making its way into the air from *two to three feet*. Quite a change, we reckon. Much of our corn this season, it is true, was planted late; nevertheless it has come rapidly forward, and we see nothing to hinder us from getting a large yield generally in Central New-York.

Besides, other crops look well, though, allow us to say, that there was not as much grain and vegetables put in this spring as there was last season, and the cause may be traced back to low prices. Farmers are willing to act under high or reasonable prices most generally, but corn and some other grains are now so low, that no great effort is being made by them to raise a great amount of the cereals. Yet believe us, an immense amount of grain will be turned off in 1856.

Grain never was so plenty before as it is now in these parts. Haying commenced early, and the yields are fine. The excitement last year in respect to cattle has pretty much subsided. We do not hear much about the purchase of steers, dry cows and heifers, for you know there has been almost a complete change from the extravagant prices of last season. The great fall has operated upon most everything and everybody. No great anxiety is prevalent among the people to buy fat cows, &c., as there was last summer. But we apprehend that a change will ere long take place favorable to the farmer. Corn will doubtless come up in value; potatoes won't be so cheap, nor buckwheat so common. We will see. It is very true, whatever the prices may be, you cannot very well starve out the farmer; he is a little community within himself, and hence you see produces what he desires for his own consumption, save a few groceries, &c.

Let us compare the prices of some articles of food in 1855 with those of 1856. Hay with us in '55 was worth $10 per ton; in '56, or at this time, it is worth about $5 or $6. Corn was worth 75 cents per bushel last season, now it is worth at from 45 to 50 cents per bushel. Wheat has also taken a downward pitch, which tendency no one probably regrets.

On the other hand, wool and sheep are doing amazingly well. Witness the price of wool here; it is worth at from 30 to 35 and 40 cents per pound. Sheep have run up in price almost beyond reason, the cause of which may be followed into our pastures, where feed is very abundant, and to the high price of wool.

We think the present low prices of grain must have something of an effect upon the price of western lands, and we hear that such effect is already to be seen in the "Iowa country." Farmers in Illinois and Iowa cannot raise corn profitably for ten or twelve cents per bushel, for either of those figures will not warrant a man out in husking and handling his corn, let alone the raising of it. But when Western farmers

cannot sell their corn in market, they can do "the other thing," turn in their hogs, and let them pick the crop. Such is now being practised, to some extent, in some parts of the West.

As to the prospects of a wheat crop hereabouts, some fields look fine, and again we begin to imagine that perhaps, the insect will not molest us if we attempt to raise the staff of life in this section. Fields of Mediterranean look very promising, and the weevil have, we think, pretty much left this part of the country. This whole region has heretofore been noted for its fine crops of wheat, but for the last ten years we have not been over successful in producing wheat on account of the ravages of divers sorts of insects. It will be pleasing if we can again raise wheat, and not be forced to buy a Western article, inferior in its nature and foul with chess, &c. Much wheat will be sown here this fall, which fact is encouraging, since farmers, in truth, will not be under the necessity of doing all their work in the spring instead of the fall.

Very respectfully, W. Tappan.

Baldwinsville, N. Y., July 13, 1856.

BALTIMORE AND OHIO RAILROAD—MODE OF ASCENDING HIGH GRADES.

We have recently seen, for the first time, a mode of ascending and descending very high grades, which in some circumstances is quite exciting. We have referred to it in our journal of our recent tour; we first saw it in operation at Frostburg, Md., at the mines, and afterwards in crossing the Alleghanies on the Baltimore and Ohio railroad—the long tunnel through the mountain being in possession of some three hundred masons.

The ascent and descent are made by a "Y;" thus,—a grade as steep as is practicable in ascending, or as would be safe in the descent, is chosen, in an oblique direction, say towards the left from the main road. A suitable distance being passed in that direction, and the surface not admitting a curve in the track, a switch is laid, and as soon as this is changed, the train backs on to it at an acute angle towards the right, forming in its progress the second half of the letter V, by which, in traveling a hundred or two of rods obliquely along the mountain, a perpendicular progress of half as many feet is perhaps attained. Going in this direction a proper distance, another switch is laid, and the train, without turning, is switched on to a third track, nearly parallel with the first, as if two printed Vs were laid side by side. This process may be repeated as many times as circumstances may require.

At Frostburg, when near the top, as you look down the steep mountain, you perceive that you are on the *third* story of the railroad, two other tracks being in plain sight below you. In descending, we set off some time after the locomotive, going forward by our own gravity only, and our speed was kept at a safe rate by the care-

ful brakeman. In coming to the more level part of the road, our car was hitched to the freight train, and drawn back to Cumberland. We found that this was the mode first practised in crossing the Alleghany mountains. But the long tunnel, elsewhere described, which was afterwards cut at an enormous expense, allowed the discontinuance of this style of crossing those rugged heights, at so great an elevation, and of course put an end to the necessity of such extreme grades.

MAGNETIC TELEGRAPHS ON RAILROADS.

THE experience of the past year or two ought to lead every State Legislature to require that every railroad should set up and use constantly its own telegraph, connecting every station on the route and all with the office of the Superintendent. With reasonable care, collisions would then be impossible. Some roads have proved this.

THE ERIE RAILROAD has such a wire, and a thorough system of communication. The arrival of every train at each station is instantly reported, and if behind time, whoever is responsible for it must give his reasons, which are sent to head-quarters instantly, or he will be dismissed. This capital system was put in operation by that model officer, Mr. McCallum, and is worthy of being copied everywhere.

The BALTIMORE AND OHIO ROAD also has a wire of its own, and a system, the details of which we are not familiar with, but which, no doubt, are very judicious. Travelers ought to show a preference for these roads and others that adopt some such modes of securing the lives and safety of passengers, and all roads neglecting them, after a reasonable time, should be avoided. It is the lack of any such encouragement to special care, on the part of travelers, that permits the laxity of system and the careless observance of general orders, which result in so many collisions, and such frightful loss of life and limb, as are constantly reported in our journals.

NEW EARS.—We see that some fanciful artist is getting up a new form of ear trumpet, which will be not only perfectly convenient, but highly ornamental. Instead of the awkward trumpet, hitherto required by those whose ears are partially insensible, a graceful ornament, like a large honeysuckle, or a trumpet flower, arranged with all its natural accompaniments, of bud and leaf, is to be laid just within or upon the ear, and, presto, the ears are as good as new. This looks very well on paper, and, if equally successful in practice, ladies who are partially deaf have occasion to be very thankful for so great an improvement in their condition.

WONDERFUL PROGRESS.

Do our readers appreciate the rapid strides we are making in some departments of industry and of science? We are almost frightened when we look in certain directions.

A few years ago, news from Europe was received almost like a new revelation. Men sought after the printed sheet which contained it, as they would after some new and wonderful animal, and with much more interest than they would for a new and useful invention. A voyage across the ocean was an event to be remembered, and the rehearsal of its events to excite wonder in children and grandchildren.

Now we go to Europe as we would to a neighboring State, and the arrival of a foreign steamer, under ordinary circumstances, is chiefly notable for the cries of the news-boys. Such changes are wrought by improvements in steam engines and in shipbuilding, and the credit of those increased facilities for intercontinental communication is due not more to Cunard and Collins than to the unknown workmen in our ship yards and machine shops. Neither those nor these, perhaps, should make an exclusive claim to this honor, for both were essential in this march of nations. The skill would not have dreamed of executing such gigantic machinery, if mercantile energy had not made its demand upon that skill.

Morse's Telegraph was another wonderful leap, which absolutely reduced the breadth of the continent to narrower dimensions for purposes of correspondence than had been measured by the few miles that separated villages in the same township. This invention opens a vast field of thought, limited to no trade, or art, or sect, or school. It is one, too, which in its influence is not limited to this world only, for it gives at least a faint glimpse of the powers of the spirit world, and is full of embryo suggestions, which we can scarcely form into definite shapes, but which will soon be brought out to our view in wonderful grandeur.

What is even now its daily and ordinary history? While sitting at a dinner-table, our thoughts are transmitted by this magic wire to some friend, hundreds of miles from us, and, though no by-stander perceives anything unusual, perhaps that friend's plans and schemes, to which a lifetime had been devoted, are at once utterly overturned. Or his thoughts may be transmitted to us, quietly seated as before, and, while nothing is heard by our companions louder than the tick of a clock, they may either excite our mirth, or open the floodgates of sorrow, or enkindle our ruder passions. Our whole being is for the time under thecontrol of that simple mechanism.

When a new principle or agency is evolved, who can tell where it will lead us? Who can trace out its minute relations and incidental connections? No sooner is every part of a continent, with its millions of broad acres spreading out in all directions, thus brought into close connection, than another bold genius, seizing this same magic wire, jumps into the sea, and there buffets the winds, and bids defiance to the waves, once undisputed masters of those cheerless wastes, till he has united remote continents. Verily, the angel has already

sounded, who declares that, in these respects, time and space "shall be no longer." No, more than this, namely, that while both continue, the one to afford opportunity for the unlimited multiplication of these forms of sentient and rational life, and the other, providing for an indefinite succession of generations, in all of which each is freighted with such immense responsibilities, neither shall be an obstruction to a ready individual intercourse among all these millions.

Among the ordinary and minor incidents that may take place, we in New-York may learn the hourly movements of some friend in London, or Paris, and, if we think he is about to expose himself too much in the evening air, or to remain too late at some brilliant party, we may send a caution to him, with the assurance that the message will be received in season to prevent such exposure, or to secure an early return to his own home. Or, we may sit in the Astor House or the Metropolitan, and receive hourly reports of the progress of an excited election in those cities, and be tolerably prepared to anticipate the result ere the poll is closed.

It is when we reflect upon those new and hitherto unimagined applications of this mighty agent, which seem to be both simple and efficient, that we entertain any question as to the success of that great enterprise,—an instantaneous international communication. Our doubts, if we have any, are founded on a purely moral view of the subject. Can it be that such tremendous agencies are so completely within human control? No difficulty, merely philosophical or scientific in its nature, has been described or hinted at by the denying or the doubting, that science and art and wealth, in their combined effort to carry out the plan to complete success, cannot, in a reasonable time, completely overcome.

American Patents.

Shingle Machine for Splitting and Shaving Shingles. Recently patented by Dr. A. V. B. Orr.—The machine is portable and costs only $100. It can be taken into the woods, and geared to a threshing-machine, and with two horses as motive-power is capable of of splitting and shaving 15,000 shingles in a day of twelve hours, but the ordinary work of a man and two boys would be from 9,000 to 10,000 per day. Shingle can be well and handsomely made with this machine from pine, spruce, chestnut, oak, or any other timber from which they can be made by hand, varying in length from ten inches to two feet.

The log from which the shingles are to be made is cut or sawed into to pieces of the required length, and then split with an axe into blocks or bolts, not exceeding eight inches thick, when, without any further preparation, the "stuff" is ready for the machine. The shingles are split with a knife set in a perpendicular frame attached to a crank shaft, which draws it along the edge of a horizontal platform, upon which the block or bolt is held by hand. In splitting the shingle the knife leaves a smooth surface on the block; one side is thus perfectly finished. The shaving-knife is attached to another crank shaft, and works

alternately with the splitting-knife. The piece split off from the block, on falling from the platform, is fed to the shaving-knife, with the smooth side down, when the shaving-knife passes over and shaves it to its proper thickness; the shingle finished falls to the ground and gives place to another, and so on.

This machine is adapted for horse, water, or steam power; and its perfection, simplicity, and cheapness recommend it to lumbering districts.

IMPROVED HAY RAKE.

THE engraving above illustrates an ingenious improvement for which a patent was granted to Nathan Martz, of Briar Creek Township, Pa., Feb. 26, 1856.

The rake is applied to a carriage which runs upon two wheels, A A, revolving upon an axletree, B. Near the wheels and on the axletree are two brackets, D D, in which a rocking shaft, E, vibrates upon its trunnions. The shaft, E, which, with its additional contrivances, constitutes the principal feature of the improvement, is made of wrought-iron, and of such a sectional size as to resist any strain to which it is liable.

Each wire-tine, T, of the rake is separately and firmly fastened to the rocking shaft, E, by suitable means, such as by welding for instance. Between the last two tines and near the extremity of the shaft, a coil spring, S, is applied, which, being fastened at one extremity to the shaft, E, and at the other to the axletree, B, has a tendency to keep the rake down upon the ground, and affording facilities for its adaptation to the inequalities of the ground. On the right hand side, (facing the horse,) and near to the coil spring, is a hand lever, H, operating the shaft, E, by the right hand of the driver seated on the seat, G.

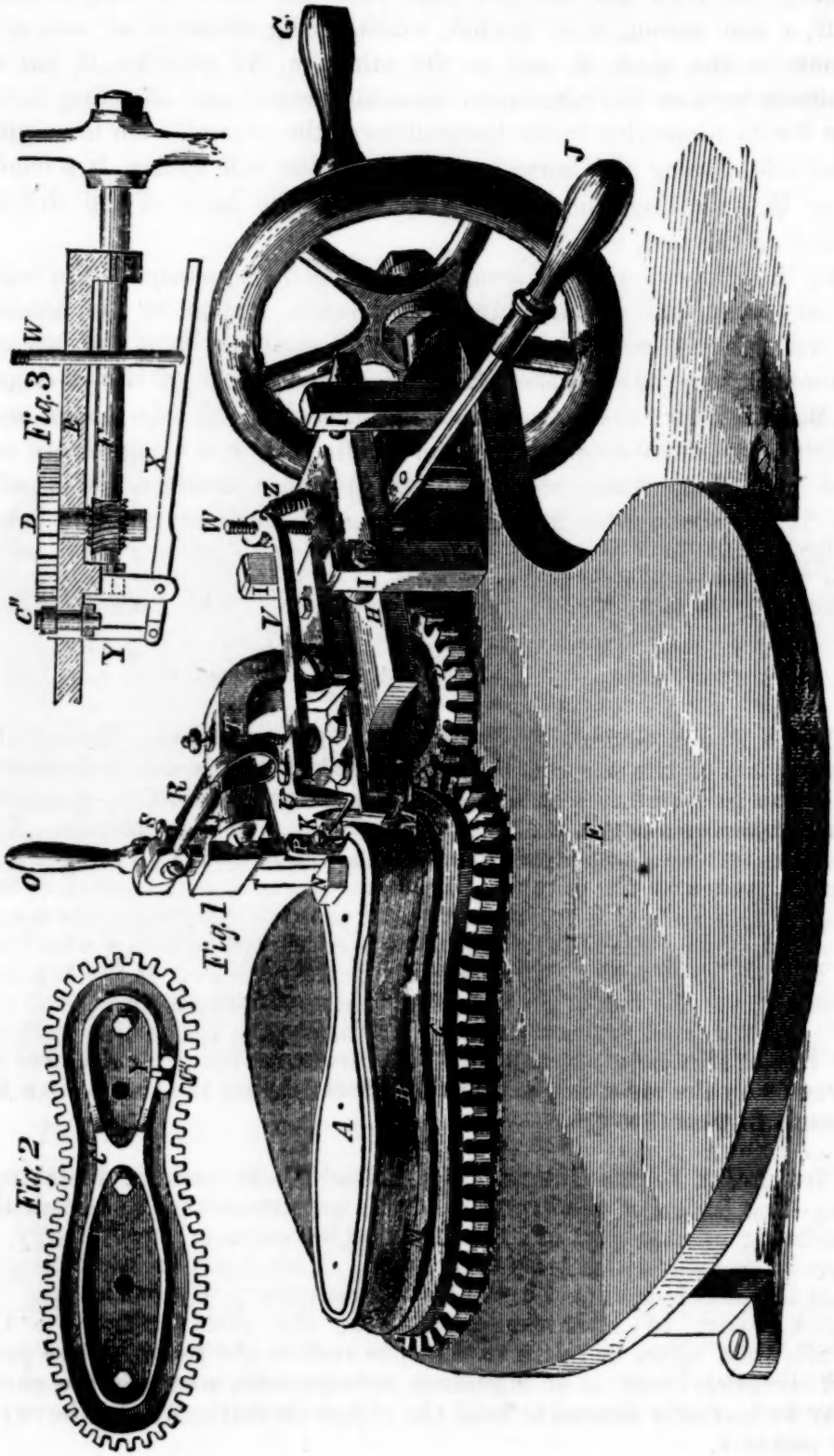
By the above-described arrangement, the management of the rake is very easy, and a very slight lifting power applied to the handle H, will raise it from the ground, and disencumber it of the hay or stubble it may have gathered. Under the seat, G, of the carriage, at M, is a lever which is attached to the shaft, E, by a chain, and which rests upon a supporting pin at O. The foot being placed on this lever (imperfectly represented at L) gives a firmness and steadiness to the shaft, while it does not prevent the necessary motion upon its pivot.

J. A. Knight & Co., 334 Broadway, are agents for this invention.

Tidal Flood Gates. By George W. Flanders, of Lynn, Mass.—On many parts of the seacoast the rise and fall of tide water is employed to drive grist and other mills. For this purpose a dam is generally thrown across a creek, a sluice way being left in the middle. The sluice is furnished inside the dam with a hinged gate, so when the tide rises it pushes up the gate and rushes into the enclosure formed by the dam. When the tide begins to fall and the current changes the water closes the gate; the fall thus obtained is employed to turn a wheel until the tide rises again. The gate is generally hinged at the top and passes across the top of the sluice, so that navigation is wholly cut off. The p resent improvement consists in hinging the gate at the bottom, so that it may be made to turn down level with the ground either by force or by the incoming of the tide, thus leaving the sluice open for vessels to pass through.

Universal Lathe Chuck. By Michael Neckerman, of Pittsburg, Pa.—The design of the inventor of this improvement is to permit the centreing of an object in lathe either on its centre or eccentrically, as may be desired, without inconvenience. Most chucks are so arranged that the article cannot be centred eccentrically without taking the chuck apart to alter the position of the jaws; after use the chuck must again be taken to pieces to restore the parts. In the present invention there is an ingenious arrangement, whereby the chuck may be instantly altered to hold the object eccentrically or otherwise, at pleasure.

MACHINE FOR CUTTING OUT BOOT AND SHOE SOLES.



MACHINE FOR CUTTING OUT BOOT AND SHOE SOLES.

It has been a slow and tedious process, hitherto, to cut out soles for boots and shoes. The material is hard, and the work is otherwise awkward and inconvenient. We exhibit to our readers a new machine for this work, which will be regarded by the craft as offering them a great benefit. One boy will do as much with it as ten men can do without it. The following description will be easily understood in connection with the engraving:

The leather, A, previously cut out into the usual rough form, is laid upon the block, B, which rests upon the cogged sole carriage, C. D is a driving pinion, which gears with C, and causes it to move around on the surface of the table, E, bringing the leather in contact with knives, to be presently described. Pinion, D, is put in motion by means of a worm wheel and screw, below the table, E, on the fly wheel shaft, F; the power is applied to the crank G. The sectional view, fig. 3, shows the manner in which the pinion D receives motion.

The cutting knives are all attached to a sliding bed plate, H, which is moved up so that the cutters will act on the leather, or back out of the way, by means of the lever, J. I are the guide posts of the bed plate, H. K is an upright knife attached to the front end of bed plate H. This knife cuts out the sole. When the bed plate, H, is moved up towards B, the friction wheel, L, which is attached to the lower side of H, meets the edge of a thin pattern, M, which is placed between B and C. The hand presses on lever J, and the friction wheel, is thus kept constantly against the pattern, M; the knife, K, is, in this manner caused to follow the peculiar form of pattern. When a different formed or sized sole is required, a corresponding pattern, M, will be necessary.

N is a pressure pad, which presses lightly upon the leather, so as to keep it smooth while it is being cut. It is raised and lowered by means of the lever eccentric, O. P is a small cutter which does the channeling. It cuts on the top of the leather, and is attached to a plunger which is raised and lowered by the eccentric lever, Q. R is a spring that presses the cutter P down, and S is a set screw, by which the depth to which the cutter P enters the leather is regulated. T is an arm attached to H, which supports the levers and cutters described.

U is the skiving knife, and as the heel part of the sole must not be skived, it is necessary that the skiving knife should lift at the proper moment, so as not to cut the heel. This movement can be understood when we explain the construction of the sole carriage, C. Figure 2 shows the under side of this device; it contains a path, C′, into which two guide pins, C″, fit. These pins are attached to the table E, (see fig. 3,) and serve as the fulcrum for C, when it moves about on the table. The heel edge of path C′, observe, is not quite as high as the front end.

We now return to the skiver, U, and its movements. It is attached to the front end of a lever, V, which is pivoted to an arm, T. The back end of the lever V connects with a rod, W, which unites, below the table, with lever X, (fig. 3,) and the forward end is joined to a rod, Y, which projects above the table, and touches the edge of the follower path, C′. The heel part of the path edge is depressed, as shown, so that when Y reaches that depression it rises, and the skiver knife, U, is thus raised from the leather, leaving the heel part unskived. Z is a spring which pulls down the lever V. Immediately below the end of V, where it unites with W, is a screw nut, by which the depth of

the bevel which the skiver cuts, may be conveniently regulated. The various cutters may be readily adjusted so as to suit different kinds and styles of soles, sewed or pegged work.

This machine operates not only with great rapidity, but does the work with unerring certainty, and imparts a handsome finish. It surpasses hand-work in every respect. It is strong and substantial; none of its parts are complicated or liable to get out of order. Single machines are sold at $25 and $30, leaving a large profit to the manufacturer. J. A. Knight & Co., 334 Broadway, N. Y., are agents, from whom further information can be had. Patented March 11, 1856.

Hub Mortising Machine.—By Thomas R. Bailey, of Lockport, N. Y.—This consists in the employment of a rotating and vibrating mandrel, to which the cutter is attached, this mandrel being arranged and operated in such a manner as to enter the shaft and cut laterally. By this means the mortices are made in dovetail form and cut with great rapidity, while the dovetail shape permits the spokes to be wedged in very firmly.

Improved Cotton Seed Planter.—A patent has recently been secured for a new cotton seed planter which is said to operate very successfully. The following description may be intelligible without a diagram:—The seed is contained in a hollow drum, the sides of which are zigzag in form, like a succession of the capital letters A and V. This is placed between a pair of wheels, and revolves with them. At each angle on the face of the drum are apertures or slots, through which the seed falls into the furrow. The furrow is opened by means of a knife attached to the front of the frame, while a board across its hinder part serves to cover the seed. A few harrow teeth in this board tend to pulverize the soil, and assist in properly covering the seed. The machine is supplied with seed through a hinged opening on one of its faces. It might be used for other kinds of seeds. It is cheap and simple.

English Patents.

Improvements in the Purification of Coal-gas, and for obtaining a residuum therefrom. By William Basford of Penclawd, Glamorganshire.—In carrying out the objects of this invention, coal-gas is passed from the retorts through vessels or apparatus charged with any of the various charcoals, and heated; but charcoal made from wood, and immersed in a strong solution of lime water, for a period of not less than fifteen minutes, is preferred.

The proportion of the lime to the water is about 1 cwt. of lime to one hundred gallons of water, or such proportion as is known to chemists under the term of "saturation." The prepared charcoal, placed in the vessel or apparatus hereinafter described, is heated to a temperature between a dull and a bright red.

The vessel for containing the charcoal is made of cast-iron, with a round bottom and perforated top, having partitions to divide the same into separate compartments. These partitions are alternately fixed and loose, the fixed partitions having a hole or space at the bottom, and the loose partitions fitted close to the bottom of the apparatus, but having a space open at the top, so that the gas can be made to pass up and down the several chambers in the apparatus, alternately over the loose partitions and under the fixed partitions; the perforations made at the top are large enough to allow the loose partitions to be drawn out when the vessel or apparatus is required to be emptied, or for filling the vessel with charcoal after the loose partitions are replaced when wanted for use. At one end of the vessel is attached a short D-shaped flanged pipe with a mouth-piece, into which the pipe leading from the retorts are fixed, either vertically or horizontally, as may be required; there is also a short D-shaped flanged pipe at the other end of the vessel or apparatus, to which is attached the outlet pipe leading from thence, by the hydraulic main, to the gas holder.

The vessel or apparatus being filled with prepared charcoal, all the apertures are sealed down, and the apparatus is then ready for use. The gas is now passed from the retort into the vessel or apparatus, heated as before described, when a chemical action takes place, by which the gas is freed from impurities, and a residuum is obtained. The gas thus purified then passes into the hydraulic main, and from thence into the gas holder.

When the vessel or apparatus is required to be emptied, the covers are removed, the sliding partitions drawn out, and the contents raked out through the mouth-piece, to which a door or cover is fixed when the vessel is in use. The residuum obtained from the gas may be used as a pigment or color. The result of the process herein described is found to be, that the gas has become more purified, and contains more illuminating power, than gas made in the ordinary manner.

The patentee claims, "First—the separation of the impurities from gas made from coal by passing the gas through charcoal saturated in lime water, and heated as hereinbefore described. And, Secondly—the formation or deposit of a residuum derived from the gas, as hereinbefore described, that may be used as a pigment or color."

IMPROVEMENTS IN SILVERING, GILDING, AND PLATINIZING GLASS. BY TONY PETITJEAN, OF TOTTENHAM-COURT-ROAD.—This invention consists in coating glass with solutions or products obtained by combining vegetable acids or hydracids (or these combined with chlorine, iodine, or bromine) with metallic salts of silver, gold, or platinum, the bases of which are combined with mineral acids or hydracids. (An alkali must be mixed with the metallic salt or with the vegetable acid.)

The following are examples of the manner of carrying the invention into effect:

TO SILVER GLASS.

In order to silver glass two solutions of silver are first prepared.

Solution No. 1 is formed by combining four chemical equivalents of ammoniacal nitrate of silver with one equivalent of tartaric acid and a suitable quantity of distilled water. To ten and a half ounces of nitrate of silver, six and a half ounces of liquid ammonia are added. The ammonia being poured upon the nitrate of silver, the combination of the two takes place with a disengagement of heat. The mixture is stirred until the combination of the two is complete, and when left to stand for several hours, crystals of ammoniacal nitrate of silver are formed. To this solution two pints and a half of distilled water are added, and the whole is well stirred to assist the crystals to dissolve. The solution is then filtered to separate from it a small quantity of black powder which is formed during the combination of the nitrate of silver and the

ammonia, and to the filtered liquid is added one and one-sixth ounces of tartaric acid, dissolved in four times that weight of distilled water. Subsequently six quarts of distilled water are added and stirred well, and the mixture is then to stand for decanting. Upon the precipitate of tartrate of silver, which is left after the decanting has taken place, from seven to eight quarts of distilled water are poured, in order to dissolve as much as possible of it. The solution is stirred and left to stand for a sufficient time, after which the liquor is decanted and mixed with the first solution. About fifteen quarts of a solution of silver is thus obtained, to which two quarts of distilled water are added, in order to make it perfectly limpid. The solution is then quite ready for use. What remains of the precipitate of tartrate of silver, after the liquid is the second time decanted from it, is dissolved by means of a few drops of nitric acid, and laid aside.

Solution No. 2 is formed by combining two chemical equivalents of ammoniacal nitrate of silver with one equivalent of tartaric acid and a suitable quantity of distilled water. All the manipulations gone through in the preparation of this solution are the same as in the case of solution No. 1; the only difference between the two solutions being that the quantity of tartaric acid in No. 2 is double that in No. 1. These solutions should be prepared for one day's use only.

The glass to be silvered should be well cleaned before it is operated upon. For this purpose, a little of the solution of No. 1 is used to moisten a piece of cotton, to which a little putty powder is applied, and with this the surface of the glass is carefully rubbed; after which it is allowed to dry. The rubbing is then repeated with a little dry putty powder, and when the glass is perfectly clean, is face is damped with a roller covered with india-rubber, which is wetted with No. 1 solution. The glass is then laid upon a suitable apparatus, heated to about 150 Fahrenheit, and upon it No. 1 solution is poured, until the surface of the glass is covered with the liquid. In about fifteen or twenty minutes a thin coating of silver is seen to be deposited all over the surface of the glass, and then as much of No. 2 solution as the surface can retain is poured thereon. The surface will retain about half a pint of the liquid on each square foot of it.) In about fifteen minutes, (or twenty minutes at most,) the coating of silver is so much increased in thickness by a deposit from the second solution that it becomes opaque. (One pennyweight of silver is thus deposited upon every square foot of the surface of the glass.) After removing from the glass the excess of the solution, the coating of silver is washed with warm water to cleanse the surface from any remain of the solution. It is then dried and coated with quickly-drying oil color or brown varnish. In this manner a looking-glass is obtained incomparably finer, lighter, and more solidly coated than those made by the common process, and that too without in any way injuring the health of the operator.

Glasses which are of such shapes that the cannot be cleaned by the process hereinbefore described, such as smelling-bottles, for example, are first plunged into a strong solution of hyposulphite of soda, and left to lie in it for ten or twelve hours. They are then washed several times, and filled with solutions No. 1 and No. 2 successively.

It is not absolutely necessary to heat the glass, as the deposition from the solutions takes place at either high or low temperatures, but the action is quickened with an increase of heat, and *vice versa*.

TO GILD AND PLATINIZE GLASS.

The operations hereinbefore described, in reference to the silvering of glass, are repeated in the gilding and platinizing of glass, with no other alteration except that a change is made in the solutions employed—the solutions of silver being replaced by solutions of gold and platinum respectively, and that one solution of gold and one of platinum only are needed.

Solution of gold.—This solution is formed by combining two chemical equivalents of per-chloride of gold with one equivalent of citrate of ammonia. In a quart of distilled water, one ounce of chloride of gold is dissolved, and the mixture filtered; to this a added a mixture of ten and a half drachms of citric

acid previously dissolved in four or five times its weight of distilled water, with five and a half drachms of liquid ammonia. This solution of gold should not be prepared until it is required for use.

Solution of platinum.—This solution is formed by combining one chemical equivalent of per-chloride of platinum with one equivalent of bitartrate of soda. In a quart of distilled water dissolve one ounce of chloride of platinum, and filter the mixture; then add to it thirteen drachms of bitartrate of soda previously dissolved in eight or nine times its weight of distilled water, and after well stirring the whole, the solution is ready for use.

The patentee claims, "First—coating glass with solutions or products obtained by combining vegetable acids or hydracids (or these combined with chlorine, iodine, or bromine,) with metallic salts of silver, gold, or platinum, the bases of which are combined with mineral acids or hydracids, an alkali being combined with the metallic salt or with the vegetable acid. Second—the several processes hereinbefore described."

Improvement in the Process of Manufacturing Cast Steel. By Franz Uchatius, of Vienna.—The object of this invention is to reduce the cost of manufacturing cast steel be economizing the labor of the process. To this end, the inventor takes pig iron of the purest quality, and melts it in a suitable furnace, and while in a molten state he runs the metal into cold water, and thereby reduces it to granulated iron. It is now in a suitable condition to undergo the process which will convert it into cast steel. This process is founded on the well-known fact, that cast iron enwrapped or surrounded by any oxygenized materials, and subjected to a cementing heat for a given time, will yield up a portion of its carbon, which will combine with the oxygen driven off from the surrounding materials, and form carbonic oxide or carbonic acid gas. If this process is interrupted before the completion of the process, a partially decarbonized iron will result, the surface of which will have been converted into a pure iron, while the interior parts remain unchanged; or, in other words, the progress of the decarbonizing action will depend on the amount of metallic surface brought into contact with the oxygen-yielding material with which the iron is surrounded. In order, therefore, to expedite this operation, the pig iron is reduced, as before mentioned, to a granulated state; and further, to economize fuel and labor, the heat required for effecting the decarbonization of the iron is employed to reduce the metal, when sufficiently decarbonized, to a molten state, and thus by one and the same heating it is converted into cast steel, which only needs to be forged to prepare it for the market. The granulated iron is mixed with about twenty per cent. of roasted pulverized sparry iron ore, and four per cent. of fire clay, and then placed in fire clay crucibles, and subjected to heat in a cast steel blast furnace, of an ordinary construction. By thus subjecting the granules of iron in presence of the sparry iron ore to a melting heat, the enwrapping oxides will first effect a partial decarbonization of the granulated iron, which decarbonization will be limited in amount according to the size of the granules operated upon; and, by reason of the continued application of heat, the iron will melt and separate (with the assistance of the melting residues of sparry iron ore) from the impurities with which it was mixed, and also bring down with it a portion of the iron contained in the sparry iron ore—thereby increasing the yield of cast steel by about six per cent.

The quality of the steel is capable of being by this process considerably modified. Thus, the finer the pig iron is granulated, the softer will be the steel made therefrom. The softer sorts of welding cast steel may be obtained by an addition of good wrought iron in small pieces, and the harder qualities by adding charcoal in various proportions to the before-mentioned mixture.

The patentee claims, "The conversion of pig iron into steel by subjecting the same, when reduced to a granulated state in crucibles, to the combined action of oxygen heat and fluxes, whereby I am enabled to manufacture cast steel of a determinate quality, and obtain it at one melting, as above described."

Miscellaneous.

JOURNEY OF THE JUNIOR EDITOR.

We have recently taken a tour of observation, in a region of country too little known here at "the East," and too beautiful to be neglected anywhere.

We left New-York by the Camden and Amboy railroad, which passes through the best scenery the State of New-Jersey can furnish. The sail through the New-York Bay to South Amboy need not be described. It is surpassed only by a sail outside of Staten Island, and sometimes the railroad boat takes that route. Or if the traveler prefer the route through Jersey City to Taconey, after passing through several of the most important cities and villages of the State, he may have a beautiful sail from Taconey down the Delaware to Philadelphia, along one of the most delightful portions of that river, presenting views of beautiful mansions and extensive mechanic and manufacturing establishments. At Philadelphia, the lions, of course, are too numerous even to be named. But we must stop, in this, our pen and ink progress, long enough to urge every traveler who has not seen Fairmount and Laurel Hill cemetery, to neglect no longer two of the most beautiful spots to be found in this section of country.

Proceeding in the cars of the Phil., Wilmington and Baltimore railroad, which, in all its departments, exhibits the energy of its efficient President, S. M. Felton. Esq., in due time you reach the "Monumental City." If you demand a residence of more quiet elegance, while just beyond your hearing thousands and hundreds of thousands of dollars are passing da ly from hand to hand, enriching, as a general rule, the occupants of those busy streets, you are more difficult to suit than ourselves. Baltimore is distinguished for its numerous literary institutions. One of them, for young ladies, conducted by Mr. Archer, has just been removed from Lexington street to Ellicott's Mills, this large establishment being united with that other not less eminent, hitherto sustained in the latter place by Mrs. Lincoln.

This announcement (not official) fairly sets us again in motion westward, for entering the cars of the Baltimore and Ohio railroad, and passing that favorite resort, the Relay House, the first object of special interest is that same thriving village of Ellicott's Mills, fifteen miles from Baltimore. The Potapsco river, all along the way, is lined with factories, presenting a view not unlike that to be seen on many a New-England river, only that the dwellings of the operatives are inferior to most of those further east. As we leave the village, directly over your head, on a lofty rock, whose height in feet must be counted by hundreds, stands the far-famed seminary to which we have just referred. Thousands have, and will ever have, associations connected with that spot, of especial interest. Long may it flourish under the supervision of its accomplished principal and his numerous and efficient assistants.

The views are pleasant but not of special interest, all along this region. Near Mt. Airy, forty-two miles from Baltimore, we have a beautiful view of distant scenery, and at Monocacy, fifty-eight miles, is a bridge worthy of careful notice. At the "Point of Rocks," sixty-nine miles on our way from Baltimore, is a junc-

tion of the river, a canal, the railroad, and a turnpike. One without a definite object in view, might well be at a loss which to patronize. But we were to pass the night at that far-famed place, "Harper's Ferry." Jefferson had not seen all the world when he wrote his "Notes," but he was correct in describing that as a beautiful spot. It is secluded, wild, and still rich, and contains some of the highest proofs of modern refinement and "advanced civilization;" for you find here an extensive armory, carried on by the national government. Our attentive landlord, who omitted nothing that he could do to increase our gratification, escorted us through all these long rows of shops, and the obliging workmen afforded us all possible means for examining their different operations. Ten thousand muskets are annually manufactured here, and some eighty thousand are stored there. We also find here several flouring mills. The village stands directly upon the river, at the confluence of the Potomac and the Shenandoah, which runs through the gap scooped out for it or by it, separating the Blue Ridge from "the North Mountain." "Jefferson's Rock" affords a splendid view, and we were assured by our host that the scenery seen from the top of the North Mountain is much finer. We left that, however, for some other opportunity. The Cheasapeake and Ohio canal passes along on the opposite side of the river, and the Winchester railroad branches off towards the South, and runs through a region said to be very beautiful.

Martinsburg, which we passed early the next morning, is one of the largest towns on that road. It is the county seat of Berkeley county. It possesses abundant water power, and has an active trade. It contains several flour mills, iron foundries, etc., and a machine shop which belongs to the railroad company. Soon after leaving the next station, which is called "North Mountain," there may be seen at some distance on your right, the remains of the old Fort Frederick, presenting the appearance of huge masonry, of a circular form, if our recollection is correct, and which would easily escape the notice of a stranger. The gentlemanly conductor pointed it out to us, at our request.

We would here state, emphatically, and may repeat it again, that we have never seen conductors so uniformly courteous and attentive, without one exception, while we changed our trains once or twice each day for an entire week or more, and through a route of more than three hundred miles, as on the Baltimore and Ohio railroad. They took constant care, sometimes to their inconvenience, knowing our desires, to gratify them in the fullest possible manner.

Hancock is another important station—a large town, and the depot where the traveler from the East, who designs to visit Berkeley Springs—a most charming spot, to which we shall refer presently—changes from the car to a stage. He will ride five miles, and then arrive at a retreat which, if there is a spark of taste in his entire composition, he will regret to leave. But just now we continue in our place, and go on to Cumberland.

We have been crossing more than once the line separating Maryland and Virginia, but we stop here for the night, within the borders of the former State, and under the care of a good and accommodating host, whom we found also a very courteous gentleman, Mr. Treiber, of the Revere House. This is a very handsome little city, in spite of the coal dust, and exhibits more marks of good taste than most towns of that size with which we are acquainted. Here we meet with the national road, and are shown also the spot, near or under the Episcopal Church—a fine edifice, where Fort Cumberland stood. Here, too,

branches off the railroad which carried us up to the *mines*, from which comes the famous Cumberland coal. But we must take another opportunity, in a separate article, to describe those curious retreats. Suffice it to say that we went for more than half a mile, a lantern in the hand of each one of our party, away from the light of the sun, and found ourselves with some five hundred feet of earth over our heads. The workmen, busy there, were as merry as larks, and save their eyes which were full of good nature, and their teeth which were like ivory, though Saxon or Celtic blood run in their veins, they seemed almost as black as the ace of spades. One shaft has been cut quite through the mountain, emerging on the other side, and quite undermining the village of Frostburg with numerous passages and large openings like immense halls. Here, at Cumberland, the passenger who would visit the Bedford Springs, so widely known, leaves the railroad for a ride in the stage-coach of some thirty miles. We did not try that route, but on the following day continued our course towards the stupendous scenery among the Alleghanies, over which the railroad passes. Nothing we have ever seen in our previous travels, except upon a portion of the Erie road, will match this. The style of its grandeur is so vast? The road ascends for seventeen miles among ravines, around huge piles of rock, high up above valleys. Long vistas constantly opening and closing excite your attention to the very top. At Oakland, near the summit, is a good house, the resort of many in the hot season who select this, which is called the "cool region," for their Nahant and Newport.

"The Cheat River Region"—where we were told we should see the climax of American scenery—comes next in course as we go down the descending grade. It is chiefly worthy of note from Rowlesburg to Newburg. Here is "Kingwood tunnel," seven-eighths of a mile long, into which you plunge till fifteen hundred feet of mountain lie over your head. What bold head first dreamed of building a railway across such a country? Tell us. It should be cut by giants wielding sledge-hammers in the very substance of the mountain. During the daytime some hundreds of men are still at work within this tunnel, lining it with bricks. The rock is a species of limestone, which is decomposed by exposure to the atmosphere. Hence, on our return, as it was the forenoon, (we passed through it after sunset in going West,) and these masons had possession, we were pushed up the old track, as originally laid, over the mountain above the tunnel. This was done by a huge, puffing monster, characteristic of the place, which shoved us from behind, while our own engine did what it could in advance of the train. We did not need much steam in coming down. But the process of descent, here as at the mines, we will describe hereafter. We must first finish this journey. Beyond the tunnel is a bridge, the situation of which, its structure, and all its features combine to render it perhaps the most remarkable structure on the continent. At, so far as we know, an unmeasured depth below, run the quiet waters of the Cheat River. From the shore ascends the precipitous and almost perpendicular side of a high mountain. Into this mountain the floods of ages have washed huge chasms of unequal depth. A long succession of iron arches, and one iron story of arches above another have been erected across two of these chasms, and on these arches lie the rails of the Baltimore and Ohio railroad! We look at each piece of hammered iron, and the hand of an ingenious man is seen to have been at work. As one and another holds its place in the huge tressel work, we begin to admire the deep science

which could thus plan and execute. When, standing on the platform of the rear car, we look through the open gates, and see the grand whole in its combination, and note its surroundings, we are amazed and almost awed at the sight. But those terrific abysses, those huge mountains, those huge giant ribs which span the arches in the structure of this huge world—whose hand wrought these? What thought designed, and what power executed these lofty mountains, with their rivers and lakes, and sparkling, foaming, thundering waterfalls?

But our thoughts (not our fancies) need to be curbed, for eyes now rest on these pages which have not recently, if ever, looked up and down those ways where God walks, and where, especially at the setting of the sun, he is most clearly seen,—the huge depths below being veiled in darkness, while above, the fleecy clouds are radiant of light and beauty and glory. Lo! these are PARTS of His ways, but the thunder of his power—who can understand!

BERKELEY SPRINGS.—On our return we stopped at Sir John's Run, and mounting a covered wagon, and riding two and a half miles, we reached this quiet and beautiful retreat. This is the exact contrast of what we have just described. In a little nook under the mountain, the sides of which are traversed by numerous foot-paths among the native trees which cover it, is the beautiful house kept by our friend, Col. Strother. It forms three sides of a square, with its long corridors and balconies, on the outer and inner sides of the building. It is enveloped in quiet shade, the work partly of nature and partly of art. It is described and very accurately represented on the 316th page of Harper's last magazine, that is, his number for August, 1856. But the shade trees are too sparse in the picture; they being thus represented, no doubt, for the purpose of giving a better view of the building. The pools for bathing are superb. One, sixty feet by twenty, affords a capital swim. The waters are as clear as crystal, and at a temperature of 74° Fahrenheit. Smaller and more private baths are numerous. Ladies are also furnished with both the large and the small baths. These waters are very efficient in the cure of rheumatic diseases. We have seen several persons who suffered very severely from such attacks, so as to be almost helpless, who were quite relieved by them.

The company here is also as delightful as the waters. It is chiefly from Maryland and Virginia, with a sprinkling from all parts of the country. There is here a freedom of intercourse among all who bear the signs of respectability, and this includes about the whole, though they may be entire strangers. This affords a truly refreshing contrast to the vulgar ostentation and offensive assumption of superiority so common at Saratoga and other places we might name, and which is based only on real or pretended wealth, and is almost universally accompanied with a great lack of general information, and an absence of all true refinement. Nothing of this is seen at Berkeley Springs. All try to enjoy themselves, and do not ignore the fact that we are a social race, and cannot be happy in being isolated from others. We left there with unmingled regret, and with a full intention to make our friendly host there and his pleasant guests another visit. The price of board at these springs is essentially more moderate than at almost any of our fashionable resorts in this section of country, and for invalids especially this is by far the most comfortable watering-place we have ever visited.

But the length of our manuscript warns us to terminate this repetition of our journey, and we omit further statements for another opportunity. Elsewhere, several allusions will be seen to the incidents of this tour.

RESOLUTION.—There is nothing in man so potential for weal or woe as firmness of purpose. Resolution is almost omnipotent. Sheridan was at first timid, and obliged to sit down in the midst of a speech. Convinced of and mortified at the cause of his failure, he said one day to a friend, "It is in me, and it shall come out." From that moment he rose, and shone and triumphed in a consummate eloquence. Here was true moral courage. And it was well observed by a heathen moralist that it is not because things are difficult that we dare not undertake them. Be then bold in spirit. Indulge no doubts, for doubts are traitors. In the practical pursuit of our high aim, let us never lose sight of it in the slightest instance; for it is more by a disregard of small things than by open and flagrant offenses that men come short of excellence. There is always a right and a wrong; and if you ever doubt, be sure you take not the wrong. Observe this rule, and every experience will be to you a means of advancement.

AGRICULTURAL FAIRS.

AGRICULTURAL FAIRS.—The fourth annual exhibition of the United States Agricultural Society will be held at Powelton, Philadelphia, on Tuesday, Wednesday, Thursday, Friday and Saturday, October 7th, 8th, 9th and 10th, 1856. Premiums are offered, varying from $25 to $200, amounting in the aggregate to $12,000. For premium list, application may be made to Wm. S. King, Secretary, Boston, or to John McGowen, Assistant Secretary, 160 Chestnut street, Philadelphia.

THE BROOKFIELD AGRICULURAL SOCIETY will hold their Seventh Annual Fair and Cattle Show at CLARKVILLE, on the 8th and 9th of October. Herman A. Hull, President, and A. L. Saunders, Secretary.

Alabama, at Montgomery,	Nov.	11, 12, 13, 14
American Institute, at the Crystal Palace, New-York,	Sept.	23 to Oct. 25
American Pomological Society, at Rochester,	Sept.	24
California, at San Jose,	Oct.	7, 8, 9, 10
Canada East, at Three Rivers,	Sept.	16, 17, 18
Canada West, at Kingston,	Sept.	23, 24, 25, 26
Connecticut, at New-Haven,	Oct.	7, 8, 9, 10
Georgia, at Atlanta,	Oct.	20, 22, 23
Illinois,	Sept. 30, & Oct.	1, 2, 3
Indiana, at Indianapolis,	Oct. 20, 21, 22, 23, 24,	25
Iowa, at Muscatine,	Oct.	8, 9, 10
Kentucky, Agricultural and Mechanical, Lexington,	Sept.	9, 12
Maine,	Oct.	28, 29, 30, 31
Michigan, at Detroit,	Sept. 30, & Oct.	1, 2, 3
New-Hampshire,	Oct.	8, 9, 10
New-Jersey, at Newark,	Sept.	10, 11, 12
New-York, at Watertown,	Sept. 30, & Oct.	1, 2, 3
North Carolina, at Raleigh,	Oct.	14, 15, 16, 17
Ohio, at Cleveland,	Sept.	23, 24, 25, 26
Pennsylvania, at Pittsburgh,	Sept. 30, & Oct.	1, 2, 3
South Carolina, at Columbia,	Nov.	11, 12, 13, 14
United States Agricultural Society, at Philadelphia,	Oct.	7, 8, 9, 10
Vermont, at Burlington,	Sept.	9, 10, 11, 12
Virginia, at Wheeling Island,	Sept.	17, 18, 19
Wisconsin, at Milwaukie,	Oct.	8, 9, 10

AMERICAN INSTITUTE FAIR.—The Twenty-eighth Annual Fair of the American Institute will be held at the Crystal Palace, beginning Sept. 22, and continuing till Oct. 25. New dies have been procured for the gold, silver, and bronze medals. The gold medal will be double the present size, and will be awarded only to the best machinery and other articles of high merit. The silver medal will also be enlarged. The bronze medal is a new feature. The new dies will be ready for exhibition during the fair. A list of premiums is announced for grain, flour, fruits, flowers, vegetables and dairy productions. Quack medicines to be expelled ignominiously, as last year.

Book Notices, Etc.

THREE GOLD DOLLARS. Harper & Brothers. This is a tale for children, by JACOB ABBOTT, and is good of course.

SCHEDULE OF PREMIUMS OF THE FIRST EXHIBITION OF THE FARMERS' AND MECHANICS' INSTITUTE, OF NORTHAMPTON COUNTY, PENN., TO BE HELD SEPT. 23 TO 26, 1856.

Female riding and driving are to be encouraged by suitable premiums; but we see that the ladies are cautioned against being too *fast*. The schedule states that the committee are instructed not to consider extreme speed on this occasion as allowable in either good riding or driving. This is all very well, and *perhaps* necessary, though our friends, the Fowlers, say that ladies are apt to have the bump of caution tolerably well developed.

THE EXECUTIVE ACTS OF EX-PRESIDENT FILLMORE; with Reasons for his Election, etc.

A very handsomely-executed pamphlet of 48 pages has been laid on our table. It is well got up in matter and manner. Price 25 cents. Edward Walker, Fulton street, publisher.

VICTORIA; or, The World Overcome. By CAROLINE CHEESBORO. New-York: Derby & Jackson.

An interesting story, powerfully written, which will add to the reputation of the talented author.

A SAMPLE OF HOW THE EARLY METHODISTS PREACHED. From Fowler's American Pulpit, recently published by J. M. Fairchild & Co., 109 Nassau st., New-York.

"Brother Craven was once preaching in the heart of Virginia, and spoke as follows: 'Here are a great many professors of religion to-day. You are sleek, fat, good-looking, yet something is the matter with you. Now you have seen wheat, which was plump, round and good-looking to the eye; but when you weighed it, you found it only came to forty-five pounds, or perhaps forty-eight, to the bushel, when it should be sixty or sixty-three pounds. Take a kernel of that wheat between your thumb and finger, hold it up and sqeeze it, and—pop goes the weevil. Now you good-looking professors of religion, you are plump and round, but you only weigh some forty-five or forty-eight pounds to the bushel. What is the matter? Ah! when you are taken between the thumb of the law and the finger of the Gospel, held up to the light and squeezed, out pops the wooly head and the whiskey bottle.'"

THIS number of *The Plough, the Loom, and the Anvil* will be mailed, as our last was, to a few non-subscribers, with a view of giving them an opportunity to examine it; and we again invite the attention of gentlemen connected with Agricultural Societies to our offer of this publication for distribution in the way of premiums and gratuities. It will be furnished for such purposes at two dollars a year, and one-fourth of the money returned in agricultural books, to be added to the Society's library, or to be distributed as premiums. Will officers of Agricultural Societies let us hear from them?

List of Patents.

FROM TERMINATION OF PREVIOUS LIST TO AUG. 5.

Solomon Andrews, of Perth Amboy, N. J., for m proved padlock.

Robert B. Armitage, of Philadelphia, Pa., for improved method of extinguishing fires.

Henry Barringer, of Barry, Ill., for improved machine for upsetting fires.

H. H. Barber, of Scott, N. J., for improved method of drawing water from wells.

James A. Bazin, of Canton, Mass., for improvement in rotary pumps.

Horace Billings, of Beardsdown, Ill., for improvement in roofing cement.

E. Braman & R. Peterson, of Green Castle, Ind., for improvement in brick machines.

Hiram B. Brown, of Yellow Springs, O., for improved vise.

Wm. M. Booth & James H. Mills, of Buffalo, N. Y., for improvement in dies for stamping or pressing sheet metal.

Edward S. Boynton, of East Hartford, Conn., for apparatus for hitching horses, clothes lines, &c.

C. N. Clow, of Port Byron, N. J., for improvement in rotary pumps.

James M. Colman & Thomas Turton, of Milwaukie, Wis., for improvement in rotary steam engines.

John E. Coffin, of Westbrook, Me., for improvment in machine for rounding and backing books.

Edwin Crawley, of Cincinnati, O., for tool for index lettering.

R. M. Dempsey, of Indianapolis, Ind., for improvement in smut machines.

J. K. Derby, of Jamestown, N. Y., for improved stave jointer.

Chas. Dickinson and Wm. Bellamy, of Newark, N.J., for improvement in securing pearl ornaments in handles of cast metal.

Chas. R. Edwards, of Niagara city, N. Y., for improved shutter operator.

Francis J. Flowers, of Brooklyn, N. Y., for improved mode of attaching shafts to vehicles.

Chas. Frost and A. W. Webster, of Waterbury, Conn., for improved machine for quarrying and cutting stone.

Wm. Fuzzard, of Cambridgeport, Mass., for improvement in machinery for felting hat bodies.

John Goulding, of Worcester, Ms., for improvement in jacquard looms—English patent, Nov. 22, 1854.

James Edwin Halsey, of New-York, N. Y., for improvement in fire-arms.

James A. Hamer, of Reading, Pa., for improvement in brick machines.

Asahel A. Hotchkiss and Andrew Hotchkiss, of Sharon, Conn., for improvement in curry-combs.

Wm. J. Hortman, of Philadelphia, Pa., for improvement in looms.

Philip H. Kells, of Hudson, N. Y., for improvement in reversible horse power.

Alexander B. Latta, of Cincinnati, O., for improved wheel for steam carriage.

James Miniſie, of Baltimore, Md., for improved arrangement of means for balancing and propelling life and property-saving vessels.

C. A. Mills, of Dubuque, Iowa, for improved stone sawing mill.

Ephraim Morris, of Bergen, N. J., for improved apparatus for raising and dumping coal.

Lysander A. Orcutt, of Albany, N. Y., for improved dove-tailing machine.

Adrain V. B. Orr, of Lancaster, Pa., for improved shingle machine.

Samuel W. Pingree, of Methuen, Mass., for improvement in tanning hides.

Orrin Rice, of Cincinnati, Ohio, for improved method of guiding circular and other saws.

Frederick J. Seymour, Waterbury, Conn., for improvement in locomotive reflector lamps.

Sewell Short, of New-London, Conn., for improved horse-shoe.

Wm. Mont Storm, of New-York, for improvement in breech-loading fire-arms.

Samuel Taylor, of Cambridge, Mass., for imment in brushes for dressing warps.

John Tyler, of West Lebanon, N. H., for improved water wheel.

Elbridge Webber, of Gardiner, Me., for improved turning machine.

C. Wheeler, jr., of Poplar Ridge, N. Y., for improvement in raking attachment for harvesters.

Daniel K. Winder, of Cincinnati, O., for improved hand printing-press.

Horace Woodman, of Biddleford, Me., for improvement in machinery for cleaning the top flats of carding engines.

James B. Aiken and Walter Aiken, of Franklin, N. H., assignor to Herrick Aiken and Jonas B. Aiken, of same place, for improved knitting machines.

Chas. E. Barnes, of Lowell, Mass., assignor to Moses W. Oliver, of Manchester, N. H., and Chas. E. Barnes, aforesaid, for improved automatic cannon.

Riley Burditt, of Brattleboro', Vt., assignor to Jacob Estey and Hatsel P. Green, of same place, for improved base damper for melodeons, &c.

Waldo P. Craig, of Newport, Ky, assignor to himself and W. K. Righter, of same place, for improved mode of constructing dams.

Henry S. George, of Syracuse, N. Y., assignor to himself and George Gratton, of same place, for improvement in cooking stoves.

John Guest, of the United States Navy, for improvement in sounding guards for vessels.

Warren S. Bartle and Ebenezer Vaughan, of Newark, N. Y., for straw cutter.

Alvin Barton, of Syracuse, N. Y., for improvement in ploughs.

Moses Bemiss, of Lyme, Ohio, for improvement in corn planters.

Arthur Barbarin and B. F. Simms, of New-Orleans, La., for electro-magnetic fog bills. Patented in England, August 17, 1855.

Benjamin F. Bee, of Wareham, Mass., for improvement in means for controlling feed-water apparatus of steam boilers.

George Blanchard, of New-York, N. Y., for improvement in nutmeg graters.

Thomas G. Boone, of Brooklyn, N. Y., for improvement in rope machines.

P. C. Cambridge, jr., of North Enfield, N. H., for improved method of turning ornamental forms.

Ira Carter, of Malone, N. Y., for improved marble-sawing machine.

Marines P. Crape, of Humboldt co., Cal., for improved machine for striking unburnt brick.

Joel Dawson, of Barnesville, O., for improved self-setting tail-block for sawing mills.

S. M. Echolo, of Lafayette, Ind., for improvement in fire-backs of fire-places.

Henry H. Elwell, of Meriden, Conn., for improved door-knob.

Cotton Foss, of Painesville, O., for straw cutter.

Chas. W. Glover, of Roxbury, Conn., for improved cutting device for harvesters.

A. M. George, of New-York, N. Y., for improved stone-dressing machine.

Victor M. Griswold, of Lancaster, O., for improved collodion for photographic pictures.

Thomas J. Godman, of Madison, Ind., for apparatus for slaughtering hogs.

Moses G. Hubbard, of Penn Yann, N. Y., for improvement in the frames of mowing and reaping machines.

A. C. Ketchum, of New York, N. Y., for improvement in railroad car wheels.

Julius J. Koenig, of Chicago, Ill., for machine for composing and distributing type.

Giles Langdall and Marcus A. Root, of Philadelphia, Pa., for mode for tinting photographic pictures.

Oren Moses, of Malone, N. Y., for straw cutter.

Lucius Paige, of Cavendish, Vt., for improved sash lock.

John Rich, of Kingsbury, N. Y., for improvement in ploughs.

Cyrus W. Saladee, of Columbus, O., for improved three-wheeled pleasure carriages.

J. G. Siemers, of St. Louis, Mo., for improvement in the adjustment of mill stones.

Geo. H. Soule, of Jersey City, N. Y., for improvement in fire-arms.

John J. Speed, jr., and John A. Bailey, of Detroit, Mich., for improvement in making seamless metal tubes.

Geo. W. Swift, of Oxford, Ill., for improvement in machines for threshing and cleaning grain in the field.

Hiram Tarbox, 2d, of Tremont, N. Y., for improved cattle stall.

Peter Teal, of Philadelphia, Pa., for improvement in detachable shaft coupling.

Hiram Thompson and Rich. Q. Tuson, of Lebanon, N. H., for improvement in mop heads.

N. H. Forrey, of Buffalo Grove, Ill., for washing machine.

John. W. Thompson, of Greenfield, Mass., for improvement in mowing machines.

John B. Witherle, of Upton, Mass., for improvement in car coupling.

J. C. Briggs, of Concord, N. H., for improvement in regulating the conical pendulum of timekeepers.

Josiah Dodge, of Dummerston, Vt., for improved mode of charging cannon.

Oliver F. Grover, of Middletown, Conn., for printer's composing stick.

Wilderick Joseph Von Kammerhueler, for improvement in centrolineado.

W. F. Shaw, of Boston, Mass., for improved machine for heating or cooking by gas.

Freidrich Emil Schmidt, of New-York, N. Y., for improvement in preparing vegetable dye stuff.

John W. Truslow, of Lewisburg, Va., for improvement in fenders for fire-places.

Wm. Wickersham, of Boston, Mass., for improved filtering medium.

Jeremiah S. Senseny, of Chambersburg, Pa., assignor to himself and Geo. H. Merklein, of same place, for improvement in lard lamps.

A. Munroe, of Worcester, Mass., for improved re-acting water-wheel.

James P. S. Otterson, of Nashua, N. H., for improved method of tapping fluids under pressure.

Edward Pelouze, Jr., of Philadelphia, Pa., for improved valve for type casting machines.

Silas G. Randall, of Rockford, Ill., for improved self-raker for harvesters.

C. S. Pettengill, of New-Haven, Conn., for improvement in repeating fire-arms.

Samuel Richards, of Philadelphia, Pa., for improvement in glass furnaces.

J. W. Rodefer, of Abingdon, Va,. for improved scaffold for shingling roofs.

John C. F. Saloman and George E. Cooper, of Baltimore, Md, for improvement in riding saddles.

John C. F. Saloman, of Baltimore, Md., for liquids used as a motive power.

Calvin D. Smith and Horace Patterson, of Baldwinville, Mass., for improved friction-match machine.

J. Stever, of Bristol, Conn., for improved arrangement of means in pendulum pumps in ships.

Alfred Swingle, of Boston, Mass., assignor to Elmer Townsend of same place, for improvement in sewing machines.

Bernard H. Westerhood, of Philadelphia, Pa., for improved trigger protector for fire-arms.

Henry White, of Oneida Castle, N. Y., for improved method of riving equal pieces from a block.

J. O. Woodward, of Taunton, Mass., for improved method of sawing coopers' hoops.

H. R. Worthington, of Brooklyn, N. Y., for improvement in relieving steam slide valves from pressure.

Chas. Mority Zimmerman, of Philadelphia, Pa., for improvement in the valves of accordeons.

B. C. Boyes, of Philadelphia, Pa., assignor to B. C. Boyes and Herman Dercum, of same place, for improvement in folding guides for sewing machines.

Asahel Lockwood, of Chicago, Ill., assignor to Lucien B. Flanders, of Cleveland, O., for improved planing machine.

E. S. Woodford, of Winchester, Conn., assignor to James R. Keeler, of New-York, N. Y., for machine for sowing pins on paper or any other material.

James Fernald of Boston, Mass., for improvement in door knobs.

Lewis M. Berry, of Boston, Mass., for improved cutter heads for planing machines.

Abner G. Bevin, of Chatham, Conn., for improved mode of attaching sleigh bells to straps.

Jeremy W. Bliss, of Hartford, Conn., for improvement in door knobs.

John Broughton, of Chicago, Ill., for improved method of driving circular saws.

George Buckel and Edward Dorch, of Monroe, Mich., for improvement in fixed cartridges.

James Chattaway, of Springfield, Mass., for improvement in percussion tape primers.

William Darker, jr., of West Philadelphia, Pa., for improvement in vibrating engines.

John S. Drake, of Boston, Mass., for improvement in artificial hands and arms.

Moses G. Farmer, of Salem, Mass., for improvement in self-acting electric telegraphs.

Ambrose Foster, of New-York, N. Y., and G. M. Foster, of Fair Haven, Conn., for improved machine for moulding and pressing building blocks from clay, &c.

Lansing E. Hopkins, of Brooklyn, N. Y., for improvement in machine for felting hat bodies.

James Humphrey, of Boston, Mass., for improvement in making gas stop-cocks.

Stephen R. Hunter, of Cortlandt, N. J., for improvement in harvesters.

Joseph Hyter, of Kent, Ind., for fly-trap.

Joshua Mason, of Paterson, N. J., for improved cutter stock for metal planers.

Matthew J. McBird, of Logansport, Ind., for improved machine for sawing stone or marble.

James B. Miles, of Chicot, Ark., for improvement in cotton gins.

John Moore, of Gardiner, Me., for improved polishing machine.

John M. Mott, jr., of Lansingburg, N. Y., for improved marble sawing machine.

Alfred Bailey, of Amesbury, Mass., for improvement in pegging jacks.

C. D. Barnitz, of Baltimore Md., for improvement in portable folding tables.

John W. Batson, of Triadelphia, Md., assignor to himself and Martin H. Batson, of Md., for improvement in raking apparatus of corn and cane harvesters.

Henry J. Behrens, of New-York, N. Y., for improvement in sawing stone in taper form.

John F. Doynton, of Syracuse, N. Y., for improvement in apparatus for solar salt evaporation.

Wm. H. Burnham and B. Hibbard, of Cortland Village, N. Y., for improvement in churns.

E. C. Cleveland, of Worcester, Mass., for improvement in metal planers.

A. S. T. Copeland, of Pittsburg, Pa., for improvement in sawing machinery.

Algernon L. Cole, of Windham, Me., for improvement in harness for weaving seamless bags.

James R. Creighton, of Boston, Mass., for improved shutter operator.

Austin G. Day, of Seymour Conn., for improved fountain pen.

Samuel Downer and Joshua Merrill, of Boston, Mass., for improvement in pyrogenous lubricating oils.

Lewis S. Fisher, of Waynesboro', Pa., for improvement in machines for sawing marble.

Geo. W. Gerau, of Brooklyn, N. Y., for improvement in fore and aft rig of vessels.

Samuel H. Gilman, of New-Orleans, La., for improvement in sugar evaporators.

John P. Hays, of Philadelphia, Pa., for improvement in bake ovens.

Charles Hoyt, of West Aurora, Ill., for improved devices in stave machinery.

E. T. Ingalls, of Haverfield, Mass., for improvement in steam boiler furnace.

Ralph Henry Isham, of Greenwich, Conn., for improved mode of "patching" rifle shot.

James D. Jeffers, Joseph Sparks, and John H. Jeffers, of Philadelphia, Pa., for improvement in corn planters.

F. R. Langwith, of New-York, N. Y., for improved clamp for plumbers.

Samuel W. Lowe, of Philadelphia, Pa., for portable printing press.

Jonn McMurty, of Fayette Co., Ky., for improved stave machine.

Patrick Mihan, of Boston, Mass., for improved method of inserting faucets into fluids under pressure.

A. C. Miller, of Morgantown, Va., for improvement in hand seed-planters.

Campbell Morfit, of Baltimore, Md., for improvement in soap boiling apparatus.

John Moore, of Quincy Point, Mass., for improvement in potatoe planters.

James Myers, jr., of New-York, N. Y., for improvement in coal scuttles.

John Nesmith, of Lowell, Mass., for impovement in knitting machines.

Washington F. Pagett, of Stone Bridge, Va., for improvement in machines for binding grain, &c.

Thomas Parkes and Alfred Parkes, of Brooklyn, N. Y., for improved printing press.

T. T. Prosser, of Oconomowock, Wis., for improvement in gutta percha apparatus for covering wire.

Solomon W. Ruggles, of Fitchburg, Mass., for pickpocket detector.

Nelson Ruger, of West Farms, N. Y., for improved devices in carving wood.

G. H. Starbuck & L. D. Gilman, of Troy, N. Y., for improvement in smut machines.

Alva B. Taylor, of Newark, N. J., for improvement in machinery for forming hat bodies.

Miron Smith, of Sandisfield, Mass., for improvement in ox yokes.

G. W. Walton & H. Edgarton, of Wilmington, Del., for improved method in turning ellipsoidal forms.

Augustin D. Waymouth, of Titchburg, Mass., for improved machine for manufacturing spools.

Cromwell P. Weaver, of Philadelphia, Pa., for improved mode of hanging window sash.

Joseph Wharton, of Philadelphia, Pa., for improvement in apparatus for purifying white oxide of zinc.

C. B. Wheeler & Austin Bascom, of Steuben, O., for improvement in clover seed harvesters.

Benjamin F. Wheelock, of Maryville, Wis., for improvement in sad iron heaters.

James Wilder, of Boston, Mass., for improvement in machines for cutting out soles of boots and shoes.

John Wright, of Wilmington, Del., for improvement in apparatus for smoking meats.

Jacob Zimerman, of Oswego, Ill., for improvement in cultivators.

Ethan Allen, of Worcester. Mass., for improvement in moulds for hollow projectiles.

S. C. Mendenhall & J. Conner, of Richmond, Ind., for improvement in flour bolts.

Thomas B. Atterbury and Wm. Warwick, of Pittsburg, Pa., assignor to Warwick, Atterbury & Co., of same place, for improved face plate for locks.

J. S. Brown, of Washington, D. C., assignor to Joseph Kent, of Baltimore, Md., for improvement in bee hives.

Theodore F. Engelbrecht, of New-York, N. Y., assignor to himself and Thomas C. Nye, of same place, for improvement in chimney dampers.

Joseph Goodridge, of Boston, Mass., assignor to Boston Faucet Co., of same place, for improved faucet.

Geo. Kenny, of Milford, N. H., assignor to Geo Kenny and George N. Davis, of Boston, Mass. for improvement in whiffle trees.

Alfred Swingle, of Boston, Mass., assignor to Elmer Townsend, of same place, for improvement in pegging jacks.

John C. Shorey, of Rochester, N. H., assignor to Augustin J. Webster, of same place, for improved method of operating gates for water wheels.